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THE

NAUTICAL ALMANAC

AND

ASTRONOMICAL EPHEMERIS,

FOR THE YEAR 1772.

Published by ORDER of the

COMMISSIONERS OF LONGITUDE.

NEW-YORK LIBRARY

LONDON:

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M DCC LXX.

[Price Three Shillings and Six Pence.]

EXTRACT from the Act of Parliament concerning the Longitude, made in the Fifth Year of the Reign of his preſent Majeſty.

WHEREAS the Publication of Nautical Almanacs conſtructed by proper Perſons, under the Direction of the ſaid Commiſſioners, would greatly contribute to make the ſaid Lunar Tables more generally uſeful; Be it further Enacted, by the Authority aforeſaid, That it ſhall and may be lawful to and for the ſaid Commiſſioners to cauſe ſuch Nautical Almanacs, or other uſeful Tables, to be conſtructed, and to print, publiſh, and vend, or cauſe to be printed, publiſhed, and vended, any Nautical Almanac or Almanacs, or other uſeful Table or Tables, which they, or the major Part of them, ſhall, from time to time, judge neceſſary and uſeful, in order to facilitate the Method of diſcovering the Longitude at Sea; any Law, Statute, excluſive Privilege, private Charter, or other Cuſtom to the contrary thereof notwithſtanding.

And be it Enacted, by the Authority aforeſaid, That no Perſon or Perſons ſhall print, publiſh, or vend, or cauſe to be printed, publiſhed, or vended, any Nautical Almanac or Almanacs, or other Table or Tables conſtructed under the Direction of the ſaid Commiſſioners, without being firſt licenſed by the ſaid Commiſſioners, or the major Part of them: And if any Perſon or Perſons not ſo licenſed, or not being authorized by the Perſon or Perſons ſo licenſed by the ſaid Commiſſioners, ſhall print, publiſh, or vend, or cauſe to be printed, publiſhed, or vended, any ſuch Nautical Almanac or Almanacs, or other Table or Tables, every ſuch Perſon or Perſons ſhall, for every Copy of ſuch Nautical Almanac or Table ſo printed, publiſhed, or vended, forfeit and pay the Sum of Twenty Pounds; to be recovered by Action of Debt, Bill, Plaint, or Information, in any of his Majeſty's Courts of Record at *Weſtminſter*; and that One Moiety of ſuch Penalty and Forfeiture ſhall be to his Majeſty, his Heirs and Succeſſors, and the other Moiety to him or them that ſhall proſecute, inform, or ſue for the ſame.

EXTRACT

EXTRACT from the late Act of Parliament concerning the Longitude, made in the Tenth Year of the Reign of his preſent Majeſty.

BE it Enacted by the KING's moſt Excellent Majeſty, by and with the Advice and Conſent of the Lords Spiritual and Temporal, and Commons, in this preſent Parliament aſſembled, and by the Authority of the ſame, That the ſaid Commiſſioners conſtituted by the ſaid ſeveral Acts beforementioned for the Diſcovery of the Longitude at Sea, and for examining, trying, and judging of all Propoſals, Experiments, and Improvements relating to the ſame, or any Five or more of them, ſhall have full Power to hear and receive any Propoſal or Propoſals that have been, or that ſhall hereafter be made to them for diſcovering the ſaid Longitude at Sea; or for improving the ſaid [Profeſſor Mayer's] Lunar Tables; or for making any other Diſcovery or Diſcoveries, Improvement or Improvements, uſeful to Navigation; and in caſe the ſaid Commiſſioners, or any Five or more of them, ſhall be ſo far ſatisfied of the Probability of any ſuch Propoſal, as to think it proper to make Experiment thereof, or of the Utility of ſuch Diſcovery or Improvement, as to think the ſame deſerving of Reward, they ſhall certify the ſame under their Hands and Seals to the Commiſſioners of the Navy for the Time being, together with the Names of the Perſon or Perſons who ſhall be the Author or Authors of ſuch Propoſal or Propoſals, or who ſhall make ſuch Diſcovery or Diſcoveries, Improvement or Improvements; and, upon producing ſuch Certificate, the ſaid Commiſſioners of the Navy are hereby authorized and required to make out a Bill or Bills for any ſuch Sum or Sums of Money, not exceeding in the Whole the Sum of Five thouſand Pounds, as the ſaid Commiſſioners for the Diſcovery of the ſaid Longitude, or any Five or more of them, ſhall think neceſſary for making any Experiments, or for giving any Reward or Rewards, Sum or Sums of Money, to ſuch Perſon or Perſons as ſhall improve the ſaid Lunar Tables, or ſhall make any Diſcovery or Diſcoveries, Improvement or Improvements uſeful to Navigation, in purſuance of this Act, or any of the ſaid Acts herein before-mentioned, payable by the Treaſurer of the Navy; which Sum or Sums of Money the Treaſurer of the Navy for the Time being is hereby authorized and required to pay immediately to the Perſon or Perſons mentioned in the ſaid Certificate or Certificates, out of any Money that ſhall be in his the ſaid Treaſurer's Hands unapplied for the Uſe of the Navy: Provided always, That if any ſuch Reward or Sum of Money ſhall exceed the Sum of One thouſand Pounds; then, and in that Caſe, the ſame ſhall be certified under the Hands and Seals of the major Part of the ſaid Commiſſioners for the Diſcovery of the ſaid Longitude.

By the COMMISSIONERS appointed by Acts of Parliament for the Diſcovery of the Longitude at Sea, and for examining, trying, and judging of all Propoſals, Experiments, and Improvements relating to the ſame.

WHEREAS we have employed proper Perſons to compute Nautical Almanacs and Aſtronomical Ephemerides for the Years 1771 and 1772, which will greatly contribute to make the Lunar Tables conſtructed by the late Profeſſor MAYER of *Gottingen* (which you have already printed with our Authority) more generally uſeful; and whereas we think fit to employ you to print the ſaid Nautical Almanacs and Aſtronomical Ephemerides: We do therefore, in purſuance of the Power veſted in us by Act of Parliament, hereby licenſe, authorize, and impower you to cauſe the ſame to be printed, together with ſuch other uſeful Tables for facilitating the Method of diſcovering the Longitude at Sea, as ſhall have been conſtructed under our Direction, and will be delivered to you by the Reverend Mr. NEVIL MASKELYNE, his Majeſty's Aſtronomer Royal at *Greenwich*; and for ſo doing this ſhall be your ſufficient Warrant. Given under our Hands and Seals this 18th of *June* 1769.

ED. HAWKE (L.S.)
JOHN CUST (L.S.)
HOWE (L.S.)
C. KNOWLES (L.S.)
F. HOLBURNE (L.S.)
N. MASKELYNE (L.S.)
A. SHEPHERD (L.S.)
T. HORNSBY (L.S.)
G. B. RODNEY (L.S.)
T. SALUSBURY (L.S.)
GREY COOPER (L.S.)
T. BRADSHAW (L.S.)
P. STEPHENS (L.S.)

To Meſſ. WILLIAM RICHARDSON and SAMUEL CLARK, Printers in *Saliſbury-court, Fleet-ſtreet.*

By Command of the Commiſſioners,

JOHN IBBETSON, Secretary.

By the COMMISSIONERS appointed by Acts of Parliament for the Diſcovery of the Longitude at Sea, and for examining, trying, and judging of all Propoſals, Experiments, and Improvements relating to the ſame.

WHEREAS we think fit to employ you to publiſh and vend, and to cauſe to be publiſhed and vended, the Nautical Almanacs and Aſtronomical Ephemerides for the Years 1771 and 1772, together with other uſeful Tables (conſtructed under our Direction) for facilitating the Method of diſcovering the Longitude at Sea, which will be printed by Meſſieurs RICHARDSON and CLARK of *Saliſbury-court, Fleet-ſtreet:* We do therefore, in purſuance of the Power veſted in us by Act of Parliament, hereby licenſe, authorize, and impower you to publiſh and vend, and to cauſe to be publiſhed and vended, the ſaid Nautical Almanacs and Aſtronomical Ephemerides, together with the other uſeful Tables above-mentioned. For which this ſhall be your ſufficient Warrant. Given under our Hands and Seals this 18th of *June* 1769.

ED. HAWKE (L.S.)
JOHN CUST (L.S.)
HOWE (L.S.)
C. KNOWLES (L.S.)
F. HOLBURNE (L.S.)
N. MASKELYNE (L.S.)
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To Mr. JOHN NOURSE, Bookſeller in the *Strand.*

By Command of the Commiſſioners,

JOHN IBBETSON, Secretary.

☞ A Licence was alſo granted to the like Effect to Meſſ. JOHN MOUNT and THOMAS PAGE, Stationers on *Tower-hill.*

PREFACE.

THE Commiſſioners of Longitude, in purſuance of the Powers veſted in them by Act of Parliament, preſent the Publick with the NAUTICAL ALMANAC and ASTRONOMICAL EPHEMERIS for the Year 1772, being the Sixth Impreſſion, to be continued annually; a Work which muſt greatly contribute to the Improvement of Aſtronomy, Geography, and Navigation. This EPHEMERIS contains every Thing eſſential to general Uſe that is to be found in any Ephemeris hitherto publiſhed, with many other uſeful and intereſting Particulars never yet offered to the Publick in any Work of this Kind. The Tables of the Moon had been brought by the late Profeſſor MAYER of Gottingen to a ſufficient Exactneſs to determine the Longitude at Sea, within a Degree, as appeared by the Trials of ſeveral Perſons who made Uſe of them. The Difficulty and Length of the neceſſary Calculations ſeemed the only Obſtacles to hinder them from becoming of general Uſe: To remove which this EPHEMERIS was made; the Mariner being hereby relieved from the Neceſſity of calculating the Moon's Place from the Tables, and afterwards computing the Diſtance to Seconds by Logarithms, which are the principal and only very delicate Part of the Calculus; ſo that the finding the Longitude by the Help of the EPHEMERIS is now in a Manner reduced to the Computation of the Time, an Operation equal to that of an Azimuth, and the Correction of the Diſtance on account of Refraction and Parallax, which is alſo rendered very eaſy by either of the Two Methods invented by Mr. LYONS and Mr. DUNTHORNE, and publiſhed among the Tables requiſite

requiſite to be uſed with the EPHEMERIS; or by either of the Two Methods annexed to this EPHEMERIS, being both Improvements of the Method which I formerly publiſhed in the BRITISH MARINER'S GUIDE and PHILOSOPHICAL TRANSACTIONS, the Firſt by myſelf, and the Second by Mr. GEORGE WITCHELL.

By Deſire of the Commiſſioners of Longitude, I drew up the Explanation and Uſe of the Articles contained in the EPHEMERIS, and the Inſtructions, with Examples, for finding the Longitude at Sea by the Help of the ſame. I alſo collected and calculated the Sixteen Firſt Pages of Tables requiſite to be uſed with the EPHEMERIS, and computed the Table of proportional Logarithms, which ſeemed to me abſolutely neceſſary to clear this Method of any remaining Difficulty; and added Explanations of all the Tables, and a Correction, p. 49 and 50, which may be applied by the Curious to the Effect of Refraction on the Moon's Diſtance from a Star, found by Mr. LYONS, or any other Method, on account of the Barometer and Thermometer.

All the Calculations of the EPHEMERIS relating to the Sun and Moon were made from Mr. MAYER'S laſt manuſcript Tables, received by the Board of Longitude after his Deceaſe, which have been printed under my Inſpection, and publiſhed lately. The Calculations of the Planets were made from Dr. HALLEY'S Tables; and thoſe of the Eclipſes of Jupiter's Satellites from the Tables of Mr. WARGENTIN, publiſhed by M. DE LA LANDE in 1759, except thoſe of the Fourth Satellite, which were calculated from the Tables of the

ſame

ſame further improved by Mr. WARGENTIN, and publiſhed alſo by M. DE LA LANDE in the CONNOISSANCE DES MOUVEMENTS CELESTES of 1766.

All the Articles of the EPHEMERIS were computed by Two ſeparate Perſons, and examined by a Third, except the Moon's Longitude, Latitude, Right Aſcenſion, Declination, Semidiameter, and Parallax, which, for Noon, were computed by One Perſon, and for Midnight by another, and the Truth of theſe Calculations aſcertained by means of Differences, which, for the Moon's Longitude, were carried as far as the Fourth Order.

The Latitude and Longitude of the LIZARD POINT, having never been determined by aſtronomical Obſervations made on the Spot or very near it, remained in ſome Degree uncertain. I had attempted, in my BRITISH MARINER's GUIDE, to deduce its Longitude, by comparing its Poſition with LESKEARD in CORNWALL by the Help of ſuch Maps as I had at hand, the Longitude of that Place being determined from the Obſervation of the Tranſit of VENUS in 1761, obſerved there by the Rev'd Mr. HAYDON: But, the Diſtance being conſiderable, and having no Reaſon to think the Maps I uſed were to be much depended on, I only flattered myſelf that I had reduced the Uncertainty about the true Longitude of the LIZARD into ſmaller Limits.

The Longitude, thus found, was 5°. 43′. weſt of GREENWICH, or 24′ greater than the common Account; and, eſteeming it moſt certain of the two, I made uſe of it for comparing with the Longitudes

Longitudes which I inferred from my Obſervations of Diſtances of the Moon from ſeveral fixed Stars, with HADLEY's Quadrant, near or in Sight of the SCILLY and LIZARD Lights, in my Voyage from ST. HELENA in 1762, altho' it made the greateſt Error, in the Longitude deduced from my Obſervations appear more by 24′ than if I had uſed the common Longitude of theſe Places; the greateſt Error by the corrected Longitude being 51′, which by the common Longitude would have been only 27′. But conſidering the Matter ſince, and particularly that the Longitude obſerved was leſs than the corrected Longitude in Three Nights Obſervations, and agreed with it only in a Fourth, I could not help ſuſpecting that I might have been led into a Miſtake in ſtating the Longitude of the LIZARD and SCILLY Iſles too great from Mr. HAYDON's Obſervation, owing to the Badneſs of the Maps which I made uſe of; and therefore wiſhed that ſome good aſtronomical Obſervations might be made at the LIZARD, in order to ſettle its true Poſition.

The Board of Longitude, to whom I propoſed my Doubts, being ſenſible of the Importance of determining the Poſition of a Place of ſo much Conſequence in the BRITISH Navigation, reſolved that the proper aſtronomical Obſervations ſhould be made at the LIZARD for that Purpoſe; and the late Tranſit of VENUS appeared a convenient Opportunity, itſelf affording one of the beſt Means of determining the Longitude of Places, and the Eclipſe of the Sun, which was to happen the Morning after, affording another Means of determining the Longitude not inferior to the former.

Accordingly Mr. JOHN BRADLEY, Nephew of the late Dr. BRADLEY, and formerly his Aſſiſtant at the Royal Obſervatory, now Second Maſter at the Royal Academy at PORTSMOUTH, was appointed to make theſe Obſervations. The Inſtruments, which he was provided with, were an Equal Altitude and Tranſit Inſtrument in one, an Aſtronomical Quadrant, and a Reflecting Teleſcope of Two Feet Focus, all made by Mr. BIRD; and an Aſtronomical Clock, with a Gridiron Pendulum, made by Mr. SHELTON; and the Obſervatory, in which they were placed, was a wooden one, formerly erected at PORTSMOUTH for Mr. BRADLEY's Uſe in making aſtronomical Obſervations on account of the Trial of Mr. HARRISON's Watch, and was now removed to the LIZARD on this Occaſion by Order of the Lords of the Admiralty.

Mr. BRADLEY was lucky enough in the Courſe of 51 Days which he ſtaid at the LIZARD; viz. from MAY 13th to JULY 3d, to make a great many Obſervations; viz. the Two Contacts of Venus at the Ingreſs; the Beginning and End of the Eclipſe of the Sun; Two Emerſions of the Firſt Satellite of Jupiter, One of the Second and One of the Third; Twelve Tranſits of the Moon over the Meridian; and Eleven Meridian Altitudes of the Moon; beſides equal Altitudes for the Going of the Clock, and Meridian Altitudes of the Sun and fixed Stars. All which, by their Number and Exactneſs, are ſufficient to determine both the Latitude and Longitude of the Place, not only for its Uſe as a Headland, but perhaps nearer than the Situations of many Places are known, where aſtronomical Obſervations have been made

for

for ſeveral Years. Mr. BRADLEY alſo made ſeveral curious Obſervations of the Depreſſion of the Horizon of the Sea at various Altitudes above its Level.

The Reſult of ſome of the principal Obſervations is here given, and the others ſhall be given at another Opportunity.

By Meridian Altitudes of the Sun and Pole Star the Latitude of the Place is 49°. 57'. 30". N.

Tranſit of VENUS and Eclipſe of the SUN.

1769,	Apparent Time.		
June 3d.	6h.50'.7",4	External Contact of Venus very exact, the Eye being fixed on the Place.	
	7. 8. 25	Internal Contact of Venus, doubtful to 4 or 5", a Cloud having hid Venus ſo long, and at its going off, 2" after the Time ſet down, a Thread of Light appeared very diſtinct between the Circumferences of the Sun and Venus.	
	18. 14. 54	Begin. of the Eclipſe of the Sun.	Both very good.
	19. 57. 17	End of the ſame.	

Theſe Obſervations were made with the Two-feet Reflector, and the Magnifying Power 120.

June 8. 9^h. 20′. 14″ Em. 1ſt Sat. of Jupiter. Jupiter had not been from under the Clouds 10″ when he ſaw the Satellite, yet he reckons the Obſervation good.

June 15. 11. 13. 46 Em. 1ſt Sat. of Jup. There was a thin Haze about Jupiter, but the Obſervation pretty good.

The ſame Teleſcope, but with the Magnifying Power of 100, was uſed for theſe Emerſions.

Comparing the above Obſervations with my own made at GREENWICH, making a ſmall Allowance for the Difference of Parallax at GREENWICH and the LIZARD in the Tranſit of Venus, and in the Difference of Brightneſs of the Teleſcopes in the Emerſions of the 1ſt Satellite; I find the Difference of Meridians of GREENWICH and the LIZARD by the external Contact of Venus 20′. 53″. of Time; by the internal Contact 21′. 1″. by the Firſt Emerſion 21′. 7″. and by the Second Emerſion 21′. 52″. Till I have Time to compare the other Obſervations, I ſhall take 21′. 0″ of Time = 5°. 15′. of the Equator for the Difference of Longitude of the LIZARD weſt of GREENWICH, which agrees nearly with the common Accounts.

Since making the above Inference I have conſulted MARTIN's Map of CORNWALL, ſaid to be very exact, and find that the Difference of Longitude of LESKEARD and the LIZARD by it ſhould be 43′. 6″. which, added to 4°. 41′. 15″. the Longitude of LESKEARD, ſhould give 5°. 24′. 21″. for the Longitude

Longitude of the LIZARD deduced from Mr. HAYDON's Obſervations in 1761, which agrees Three times nearer with my preſent Determination than with my former one in the BRITISH MARINER's GUIDE, which was affected by the Error of a bad Map of CORNWALL.

Before I conclude, let me correct a ſimilar Error in the Longitude of the Cape Point or Promontory, as laid down in p. 157 of the Explanation of the Ephemeris, ariſing from a ſimilar Cauſe, the faults of bad Charts. By conſulting the Memoires of the Royal Academy of Sciences at PARIS for 1751, I find the Abbe DE LA CAILLE ſays, that the Point of Land, which forms the Cape, properly ſpeaking, is under the ſame Meridian with the CAPE TOWN, and in Latitude 29′ South of it, as he has found by Obſervations made on Purpoſe. Hence, with the Help of the Chart of the CAPE OF GOOD HOPE and the Places adjacent, annexed to the Obſervations of the Abbe DE LA CAILLE in the ſaid Memoires, I find the Latitude and Longitude of the principal Points to be as follows.

	Latitude South.	Long. eaſt of Greenwich.
	D. M.	D. M.
Cape Town	33. 55	18. 23
Cape Point	34. 29	18. 23
Cape Falſe or Hanglip	34. 16	18. 44
Falſe Bay	34. 10	18. 33
Saldanha Bay	33. 10	17. 59
Daſſen Iſland	33. 25	18. 2
Hout Bay	34. 3	18. 19

To this EPHEMERIS are alſo annexed the Eclipſes of the Third Satellite of Jupiter in the Years 1771 and 1772, computed from the new Tables publiſhed with the NAUTICAL ALMANAC of 1771, the Eclipſes ſet down in the EPHEMERIS itſelf for theſe Two Years having been done before from the old Tables. For the future theſe Computations in the EPHEMERIS will be made from the new Tables.

In order to find more readily what Eclipſes of Jupiter's Satellites will happen when Jupiter is at leaſt 8° above, and the Sun as much below the Horizon, which are diſtinguiſhed with Afteriſcs, Two Tables are here added; One containing Jupiter's Hour-angles to different Declinations when his Altitude is exactly 8°, and the other the Sun's Hour-angle or Time from Noon, when he is depreſſed 8° below the Horizon: It is plain that if Jupiter's Hour-angle at any time is equal to or leſs than what correſponds in the Table to his given Declination, that Jupiter will be 8° high or more; and that if the Sun's Hour-angle at any time is equal to or greater than what is ſet down in the Table againſt his Declination, that the Sun will be 8° or more below the Horizon: Whence it will be eaſy eaſy to know what Eclipſes of Jupiter's Satellites can be conveniently obſerved at GREENWICH, and ſhould be diſtinguiſhed with Afteriſcs in the EPHEMERIS.

Laſtly, Mr. LYONS's Solution of a Problem in MERCATOR's NAVIGATION, propoſed formerly by Dr. HALLEY as wanting to complete that Doctrine, cannot but be acceptable to the Curious.

NEVIL MASKELYNE,
ASTRONOMER ROYAL.

EXPLANATION of the Characters uſed in the EPHEMERIS.

The PLANETS, &c.

☉ The Sun.	♂ Mars.
☾ The Moon.	♃ Jupiter.
☿ Mercury.	♄ Saturn.
♀ Venus.	

☊ The Moon's, or any other Planet's Aſcending Node.
☋ The Deſcending Node.
☌ Conjunction, or Planets ſituated in the ſame Longitude.
☍ Oppoſition, or Planets ſituated in oppoſite Longitudes, or differing 6 Signs from each other.

Signs of the Zodiac.

S.		S.	
0.	♈ Aries.	6.	♎ Libra.
1.	♉ Taurus.	7.	♏ Scorpio.
2.	♊ Gemini.	8.	♐ Sagittarius.
3.	♋ Cancer.	9.	♑ Capricornus.
4.	♌ Leo.	10.	♒ Aquarius.
5.	♍ Virgo.	11.	♓ Piſces.

ECLIPSES for the YEAR 1772.

April 17. ☽ totally eclipſed, inviſible:

	H. M.
Beginning of the Eclipſe — — —	2. 17½
Beginning of total Darkneſs — —	3. 14½
Middle — — — — — — —	4. 4½
End of total Darkneſs — — —	4. 54½
End of the Eclipſe — — — —	5. 52
Digits eclipſed — —	21°.18′

Sept. 26. ☉ eclipſed inviſible in *Europe:*

♂ at 12ʰ. 23′. in 4°. 24′. of ♎; ☽'s Latitude 1°. 24′½. South. This Eclipſe will be viſible only in Places near the South Pole.

ECLIPSES for the YEAR 1772.

Octob. 11. ☽ totally eclipſed, partly viſible: H. M.

Beginning of the Eclipſe	3. 29
Beginning of total Darkneſs	4. 35
Middle	5. 27
☽ riſes	5. 28
End of total Darkneſs	6. 19
End of the Eclipſe	7. 25
Digits eclipſed — —	19°. 46′

Octob. 25. ☉ eclipſed, viſible: H. M.

Beginning	20. 23
Greateſt Obſcuration	20. 31
End	20. 39
Digits eclipſed — —	0°. 6′⅓.

	Obliquity of Ecliptic.	Equat. of Equin. Points.
1772.	° ′ ″	″
Jan. 1.	23. 28. 0,7	+ 10,2
Apr. 1.	23. 28. 0,2	+ 9,6
July 1.	23. 27. 59,6	+ 7,6
Oct. 1.	23. 27. 59,2	+ 6,2
Dec. 31.	23. 27. 58,8	+ 4,7

ERRATA.

P. 2. Jan. 4. Sun's Right Aſcenſ. for 19′. read 59′.
P. 22. Feb. 28. Noon, ☽ from Spica ♍, for 85° read 83°.

Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	W.	*Circumcision.*
2	Th.	
3	F.	
4	Sa.	
5	*Su.*	*1st Sund. after Circumcis.*
6	M.	*Epiphany.*
7	Tu.	
8	W.	Lucian.
9	Th.	
10	F.	
11	Sa.	
12	*Su.*	*1st Sund. after Epiphany.*
13	M.	Hilary. Cam. T. begins.
14	Tu.	Oxford Term begins.
15	W.	
16	Th.	
17	F.	[*kept.* Prisca.
18	Sa.	Q. *Charlotte's birth-day*
19	*Su.*	*2d Sund. after Epiphany.*
20	M.	Fab. In 8 days of S.Hil.
21	Tu.	St. Agnes. [1 ret.
22	W.	Vincent.
23	Th.	Hilary Term begins.
24	F.	
25	Sa.	*Conversion of St. Paul.*
26	*Su.*	*3d Sund. after Epiphany.*
27	M.	From St. Hil. in 15 days,
28	Tu.	[2 ret.
29	W.	
30	Th.	*K. Charles* I. *martyr.*
31	F.	

Phases of the Moon.

	D.	H.	M.
New Moon —	4.	11.	42
First Quarter —	12.	14.	56
Full Moon —	19.	22.	36
Last Quarter —	26.	14.	12

Other Phenomena.

D.

1. ☾ ☌ ♏ 2^h. 14′.
   ☾ ☌ ♎ 4^h. 53′.
5. ♂ ☌ ♀ diff. Lat. 26′.
   ☾ ☌ ♑ 18^h. 41′.
6. ♂ ☌ ♀ diff. Lat. 58′.
8. ♂ ♀ ☿ diff. Lat. 1°. 13′.
11. ☾ ☍ ♓ 15^h. 33′.
    ☾ ☌ ♓ 22^h. 24′.
13. ☿ Stationary.
16. ☾ ☌ ♉ 0^h. 52′.
17. ♀ ☌ ♑ diff. Lat. 57′.
19. ♀ ☍ ♑ diff. Lat. 57′.
    ☉ enters ♒ at 21^h. 40′.
20. ☾ 1 ad ☌ ♋ Im. 14^h. 29′. Em. 15^h. 15′. * passes $11\frac{1}{2}$′. N. of ☽'s Center.
    ☾ 2 ad ☌ ♋ 15^h. 29′.
    ☾ ☌ ♋ 19^h. 34′.
21. ☾ ☌ ♌ 16^h. 42′.
23. ♀ ☌ ♒ diff. Lat. 29′.
25. ☾ ☌ ♍ 10^h. 21′.
26. ☾ ☌ ♍ 8^h. 56′.
    ☾ ☌ ♎ 23^h. 10′.
28. ☾ ☍ ♏ 7^h. 24′.
    ☾ ☌ ♏ 10^h. 14′.

[2] JANUARY 1772.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. South.	Equat. of Time. Add.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	W.	9. 10. 44. 12	18.46.43,0	23. 1. 56	3. 58,7	28, 5
2	Th.	9. 11. 45. 26	18.51. 8, 1	22. 56. 46	4. 27,2	28, 1
3	F.	9. 12. 46. 39	18.55.32, 9	22. 51. 8	4. 55,3	27, 7
4	Sa.	9. 13. 47. 51	18.59.57, 1	22. 45. 4	5. 23,0	27, 2
5	*Su.*	9. 14. 49. 3	19. 4.21, 0	22. 38. 32	5. 50,2	26, 8
6	M.	9. 15. 50. 15	19. 8.44, 4	22. 31. 34	6. 17,0	26, 3
7	Tu.	9. 16. 51. 27	19.13. 7, 3	22. 24. 8	6. 43,3	25, 7
8	W.	9. 17. 52. 39	19.17.29, 7	22. 16. 17	7. 9,0	25, 3
9	Th.	9. 18. 53 50	19.21.51, 5	22. 7. 59	7. 34,3	24, 6
10	F.	9. 19. 55. 0	19.26.12, 8	21. 59. 15	7. 58,9	24, 1
11	Sa.	9. 20. 56. 9	19.30.33, 5	21. 50. 5	8. 23,0	23, 5
12	*Su.*	9. 21. 57. 18	19.34.53, 6	21. 40. 30	8. 46,5	22, 7
13	M.	9. 22. 58. 25	19.39.13, 1	21. 30. 30	9. 9,2	22, 2
14	Tu.	9. 23. 59. 32	19.43.31, 8	21. 20. 4	9. 31,4	21, 4
15	W.	9. 25. 0. 38	19.47.49, 9	21. 9. 15	9. 52,8	20, 8
16	Th.	9. 26. 1. 43	19.52. 7, 2	20. 58. 1	10. 13,6	20, 0
17	F.	9. 27. 2. 48	19.56.23, 9	20. 46. 24	10. 33,6	19, 4
18	Sa.	9. 28. 3. 51	20. 0.39, 8	20. 34. 22	10. 53,0	18, 5
19	*Su.*	9. 29. 4. 53	20. 4.54, 9	20. 21. 58	11. 11,5	17, 8
20	M.	10. 0. 5. 55	20. 9. 9, 3	20. 9. 10	11. 29,3	17, 1
21	Tu.	10. 1. 6. 56	20.13.23, 0	19. 56. 0	11. 46,4	16, 3
22	W.	10. 2. 7. 56	20.17.35, 9	19. 42. 28	12. 2,7	15, 5
23	Th.	10. 3. 8. 55	20.21.48, 1	19. 28. 34	12. 18,2	14, 8
24	F.	10. 4. 9. 54	20.25.59, 5	19. 14. 18	12. 33,0	14, 0
25	Sa.	10. 5. 10. 52	20.30.10, 1	18. 59. 40	12. 47,0	13, 2
26	*Su.*	10. 6. 11. 50	20.34.19, 8	18. 44. 43	13. 0,2	12, 4
27	M.	10. 7. 12. 46	20.38.28, 8	18. 29. 24	13. 12,6	11, 6
28	Tu.	10. 8. 13. 42	20.42.37, 0	18. 13. 46	13. 24,2	10, 8
29	W.	10. 9. 14. 37	20.46.44, 5	17. 57. 47	13. 35,0	10, 0
30	Th.	10. 10. 15. 32	20.50.51, 1	17. 41. 30	13. 45,0	9, 2
31	F.	10. 11. 16. 26	20.54.56, 8	17. 24. 54	13. 54,2	8, 4

Days.	Semidiameter of the Sun.	Time of D° passing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Distance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	16. 19, 2	1. 10, 9	2. 32, 9	9. 992663	7. 4. 46
7	16. 19, 1	1. 10, 6	2. 32, 8	9. 992728	7. 4. 27
13	16. 18, 9	1. 10, 1	2. 32, 8	9. 992855	7. 4. 8
19	16. 18, 3	1. 9, 5	2. 32, 6	9. 993063	7. 3. 49
25	16. 17, 6	1. 8, 9	2. 32, 4	9. 993372	7. 3. 30

The Eclipses of JUPITER's Satellites will not be visible this Month, JUPITER being too near the SUN.

Days.	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Paſſage over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
MERCURY. Greateſt Elong. 6d. Inf. ☌ 22d. 5½h.						
1	11. 27. 46	5. 12 S	9. 28. 38	1. 39 S	22. 4 S	1. 18
7	0. 29. 21	1. 59 S	10. 5. 54	0. 40 S	19. 27	1. 21
13	2. 5. 40	2. 23 N	10. 9. 14	0. 55 N	17. 5	1. 6
19	3. 13. 15	5. 53	10. 6. 12	2. 41	16. 8	0. 27
25	4. 17. 25	6. 59	9. 28. 57	3. 35	16. 53	23. 31
VENUS.						
1	10. 21. 8	3. 7 S	9. 27. 47	1. 24 S	22. 0 S	1. 14
7	11. 0. 38	3. 17	10. 5. 17	1. 31	20. 27	1. 18
13	11. 10. 9	3. 23	10. 12. 48	1. 34	18. 29	1. 23
19	11. 19. 41	3. 23	10. 20. 18	1. 36	16. 15	1. 27
25	11. 29. 13	3. 17	10. 27. 47	1. 33	13. 43	1. 32
MARS.						
1	8. 23. 46	1. 5 S	9. 0. 35	0. 39 S	24. 7 S	23. 15
7	8. 27. 11	1. 10	9. 5. 6	0. 42	24. 4	23. 8
13	9. 0. 40	1. 15	9. 9. 40	0. 45	23. 52	23. 2
19	9. 4. 10	1. 20	9. 14. 15	0. 48	23. 31	22. 56
25	9. 7. 41	1. 24	9. 18. 50	0. 51	22. 59	22. 51
JUPITER. ☌ 29d. 12h.						
1	10. 7. 16	0. 38 S	10. 3. 4	0. 32 S	20. 1 S	1. 35
7	10. 7. 47	0. 39	10. 4. 28	0. 32	19. 41	1. 14
13	10. 8. 19	0. 40	10. 5. 52	0. 33	19. 22	0. 54
19	10. 8. 50	0. 40	10. 7. 16	0. 33	19. 0	0. 34
25	10. 9. 22	0. 41	10. 8. 41	0. 34	18. 39	0. 15
SATURN.						
1	4. 24. 42	1. 22 N	4. 29. 18	1. 29 N	13. 7 N	15. 18
7	4. 24. 55	1. 22	4. 29. 0	1. 30	13. 15	14. 50
13	4. 25. 8	1. 23	4. 28. 40	1. 32	13. 23	14. 23
19	4. 25. 21	1. 23	4. 28. 19	1. 33	13. 31	13. 57
25	4. 25. 34	1. 24	4. 27. 56	1. 34	13. 40	13. 30

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
1	W.	7. 28. 46. 15	8. 5. 25. 59	1. 57. 28 N	2. 29. 16 N
2	Th.	8. 12. 3. 6	8. 18. 37. 36	2. 58. 47	3. 25. 39
3	F.	8. 25. 9. 21	9. 1. 38. 17	3. 49. 36	4. 10. 23
4	Sa.	9. 8. 4. 14	9. 14. 27. 10	4. 27. 43	4. 41. 34
5	*Su.*	9. 20. 47. 3	9. 27. 3. 40	4. 51. 47	4. 58. 20
6	M.	10. 3. 17. 12	10. 9. 27. 36	5. 1. 18	5. 0. 39
7	Tu.	10. 15. 34. 59	10. 21. 39. 29	4. 56. 32	4. 49. 2
8	W.	10. 27. 41. 20	11. 3. 40. 46	4. 38. 23	4. 24. 38
9	Th.	11. 9. 38. 16	11. 15. 34. 10	4. 8. 7	3. 48. 57
10	F.	11. 21. 28. 59	11. 27. 23. 14	3. 27. 20	3. 3. 31
11	Sa.	0. 3. 17. 32	0. 9. 12. 24	2. 37. 45	2. 10. 9
12	*Su.*	0. 15. 8. 39	0. 21. 6. 53	1. 41. 5	1. 10. 43
13	M.	0. 27. 7. 49	1. 3. 12. 11	0. 39. 20 N	0. 7. 12 N
14	Tu.	1. 9. 20. 38	1. 15. 33. 47	0. 25. 19 S	0. 57. 59 S
15	W.	1. 21. 52. 19	1. 28. 16. 46	1. 30. 22	2. 2. 5
16	Th.	2. 4. 47. 34	2. 11. 25. 10	2. 32. 45	3. 1. 48
17	F.	2. 18. 9. 39	2. 25. 1. 14	3. 28. 52	3. 53. 17
18	Sa.	3. 1. 59. 43	3. 9. 4. 47	4. 14. 40	4. 32. 26
19	*Su.*	3. 16. 15. 53	3. 23. 32. 20	4. 46. 10	4. 55. 26
20	M.	4. 0. 53. 16	4. 8. 17. 40	4. 59. 55	4. 59. 23
21	Tu.	4. 15. 44. 25	4. 23. 12. 21	4. 53. 48	4. 43. 10
22	W.	5. 0. 40. 17	5. 8. 6. 54	4. 27. 41	4. 7. 40
23	Th.	5. 15. 31. 35	5. 22. 53. 8	3. 43. 31	3. 15. 47
24	F.	6. 0. 11. 4	6. 7. 24. 44	2. 45. 1	2. 11. 48
25	Sa.	6. 14. 33. 53	6. 21. 38. 15	1. 36. 53	1. 0. 48 S
26	*Su.*	6. 28. 37. 46	7. 5. 32. 38	0. 24. 10 S	0. 12. 24 N
27	M.	7. 12. 22. 49	7. 19. 8. 31	0. 48. 23 N	1. 23. 17
28	Tu.	7. 25. 50. 5	8. 2. 27. 42	1. 56. 41	2. 28. 6
29	W.	8. 9. 1. 36	8. 15. 32. 6	2. 57. 15	3. 23. 47
30	Th.	8. 21. 59. 26	8. 28. 23. 38	3. 47. 29	4. 8. 3
31	F.	9. 4. 45. 6	9. 11. 3. 52	4. 25. 24	4. 39. 19

Days of the Month.	Days of the Week.	D's Age.	D's Paſſage over Merid.	D's Right Aſcen. at Noon.	D's Right Aſc. at Midn.	D's Declinat. at Noon.	D's Declin. at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	W.	28	21. 48	236. 59	243. 59	18. 0 S	18. 47 S
2	Th.	29	22. 41	250. 58	257. 57	19. 18	19. 34
3	F.	30	23. 33	264. 52	271. 44	19. 33	19. 17
4	Sa.	1	♂	278. 30	285. 10	18. 46	18. 1
5	*Su.*	2	0. 23	291. 42	298. 7	17. 5	15. 53
6	M.	3	1. 11	304. 24	310. 33	14. 33	13. 4
7	Tu.	4	1. 56	316. 33	322. 27	11. 27	9. 44
8	W.	5	2. 40	328. 15	333. 59	7. 56	6. 3
9	Th.	6	3. 22	339. 38	345. 14	4. 8	2. 11 S
10	F.	7	4. 4	350. 49	356. 23	0. 12 S	1. 46 N
11	Sa.	8	4. 44	1. 58	7. 35	3. 43 N	5. 38
12	*Su.*	9	5. 28	13. 17	19. 4	7. 31	9. 20
13	M.	10	6. 12	24. 56	30. 56	11. 4	12. 42
14	Tu.	11	6. 58	37. 5	43. 23	14. 13	15. 36
15	W.	12	7. 48	49. 51	56. 30	16. 48	17. 49
16	Th.	13	8. 40	63. 19	70. 19	18. 37	19. 11
17	F.	14	9. 35	77. 27	84. 44	19. 28	19. 29
18	Sa.	15	10. 32	92. 6	99. 34	19. 12	18. 37
19	*Su.*	16	11. 30	107. 3	114. 31	17. 44	16. 34
20	M.	17	12. 27	121. 59	129. 24	15. 6	13. 23
21	Tu.	18	13. 23	136. 44	143. 59	11. 27	9. 20
22	W.	19	14. 18	151. 9	158. 14	7. 4	4. 42 N
23	Th.	20	15. 12	165. 14	172. 10	2. 17 N	0. 10 S
24	F.	21	16. 4	179. 4	185. 56	2. 36 S	4. 58
25	Sa.	22	16. 57	192. 46	199. 36	7. 14	9. 23
26	*Su.*	23	17. 49	206. 27	213. 19	11. 23	13. 11
27	M.	24	18. 42	220. 11	227. 5	14. 48	16. 12
28	Tu.	25	19. 35	233. 59	240. 54	17. 21	18. 15
29	W.	26	20. 28	247. 48	254. 41	18. 54	19. 18
30	Th.	27	21. 20	261. 31	268. 18	19. 27	19. 19
31	F.	28	22. 11	275. 1	281. 38	18. 57	18. 22

Days of the Month.	Days of the Week.	Semidr. ☽ at Noon.	Semidr. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Log. at Noon.	Proport. Log. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	W.	15. 44	15. 40	57. 43	57. 29	4940	4957
2	Th.	15. 36	15. 32	57. 15	56. 59	4975	4995
3	F.	15. 27	15. 23	56. 44	56. 29	5014	5033
4	Sa.	15. 19	15. 15	56. 13	55. 58	5054	5073
5	*Su.*	15. 11	15. 7	55. 44	55. 30	5091	5110
6	M.	15. 4	15. 0	55. 16	55. 3	5128	5145
7	Tu.	14. 57	14. 54	54. 52	54. 42	5159	5173
8	W.	14. 52	14. 50	54. 33	54. 26	5185	5194
9	Th.	14. 49	14. 48	54. 21	54. 18	5201	5205
10	F.	14. 48	14. 48	54. 18	54. 19	5205	5203
11	Sa.	14. 49	14. 51	54. 23	54. 29	5198	5190
12	*Su.*	14. 52	14. 56	54. 39	54. 50	5177	5162
13	M.	14. 59	15. 5	55. 4	55. 21	5144	5122
14	Tu.	15. 10	15. 16	55. 40	56. 1	5097	5069
15	W.	15. 22	15. 29	56. 23	56. 48	5041	5009
16	Th.	15. 36	15. 43	57. 14	57. 40	4976	4943
17	F.	15. 50	15. 57	58. 7	58. 33	4910	4877
18	Sa.	16. 4	16. 11	58. 58	59. 22	4846	4817
19	*Su.*	16. 17	16. 22	59. 44	60. 3	4790	4768
20	M.	16. 26	16. 29	60. 18	60. 30	4750	4735
21	Tu.	16. 32	16. 33	60. 39	60. 44	4724	4718
22	W.	16. 33	16. 32	60. 44	60. 41	4718	4722
23	Th.	16. 31	16. 28	60. 34	60. 24	4730	4742
24	F.	16. 24	16. 20	60. 12	59. 57	4757	4775
25	Sa.	16. 16	16. 11	59. 41	59. 23	4794	4816
26	*Su.*	16. 6	16. 0	59. 4	58. 44	4839	4864
27	M.	15. 55	15. 50	58. 25	58. 5	4887	4912
28	Tu.	15. 44	15. 39	57. 45	57. 26	4937	4961
29	W.	15. 34	15. 29	57. 8	56. 50	4984	5006
30	Th.	15. 24	15. 20	56. 33	56. 17	5028	5049
31	F.	15. 16	15. 12	56. 1	55. 46	5069	5089

Diſtances of ☽'s Center from ☉, and from Stars eaſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	The Sun.	42. 0. 14	40. 28. 8	38. 56. 20	
6	α Pegaſi.	47. 58. 4	46. 32. 13	45. 6. 49	43. 41. 56
7		36. 47. 6	35. 26. 25	34. 6. 39	32. 47. 50
8	α Arietis.	66. 22. 4	64. 53. 51	63. 25. 48	61. 57. 54
9		54. 40. 47	53. 13. 49	51. 46. 59	50. 20. 19
10		43. 9. 25	41. 43. 42	40. 18. 11	38. 52. 52
11		31. 49. 45			
11	Aldebaran.	63. 45. 39	62. 17. 1	60. 48. 17	59. 19. 30
12		51. 54. 0	50. 24. 33	48. 54. 58	47. 25. 13
13		39. 54. 1	38. 23. 12	36. 52. 10	35. 20. 56
14		27. 41. 17	26. 8. 37	24. 35. 44	23. 2. 39
15		15. 14. 13			
15	Pollux.	58. 40. 5	57. 6. 59	55. 33. 36	53. 59. 58
16		46. 8. 22	44. 33. 23	42. 58. 18	41. 23. 6
17		33. 26. 42			
17	Regulus.	68. 34. 54	66. 53. 9	65. 10. 59	63. 28. 24
18		54. 49. 44	53. 4. 53	51. 19. 42	49. 34. 10
19		40. 41. 55	38. 54. 38	37. 7. 9	35. 19. 30
20		26. 19. 26			
20	Spica ♍	79. 38. 39	77. 48. 16	75. 57. 42	74. 6. 56
21		64. 50. 56	62. 59. 25	61. 7. 50	59. 16. 13
22		49. 57. 51	48. 6. 18	46. 14. 51	44. 23. 27
23		35. 8. 0	33. 17. 22	31. 26. 56	29. 36. 41
24		20. 28. 35			
24	Antares.	66. 16. 1	64. 28. 4	62. 40. 24	60. 53. 1
25		52. 0. 49	50. 15. 20	48. 30. 15	46. 45. 31
26		38. 7. 56	36. 25. 45	34. 44. 1	33. 2. 46
24	The Sun.			120. 34. 47	118. 54. 27
25		110. 36. 28	108. 57. 40	107. 19. 9	105. 40. 55
26		97. 34. 2	95. 57. 31	94. 21. 16	92. 45. 19
27		84. 49. 59	83. 15. 48	81. 41. 53	80. 8. 16
28		72. 24. 15	70. 52. 15	69. 20. 31	67. 49. 3
29		60. 15. 39	58. 45. 43	57. 16. 1	55. 46. 33
30		48. 22. 49	46. 54. 48	45. 27. 0	43. 59. 27

Diſtances of ☽'s Center from ☉, and from Stars eaſt of her.

Days.	Stars Names.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
6	ϰ Pegaſi.	42. 17. 37	40. 53. 54	39. 30. 54	38. 8. 38
7		31. 30. 1			
7		72. 16. 43	70. 47. 47	69. 19. 2	67. 50. 28
8	Arietis.	60. 30. 11	59. 2. 36	57. 35. 11	56. 7. 54
9		48. 53. 48	47. 27. 27	46. 1. 17	44. 35. 16
10		37. 27. 45	36. 2. 53	34. 38. 14	33. 13. 51
11		57. 50. 36	56. 21. 37	54. 52. 32	53. 23. 19
12	Aldeba-	45. 55. 20	44. 25. 17	42. 55. 3	41. 24. 37
13	ran.	33. 49. 28	32. 17. 46	30. 45. 50	29. 13. 41
14		21. 29. 20	19. 55. 50	18. 22. 9	16. 48. 16
15	Pollux.	52. 26. 5	50. 51. 58	49. 17. 38	47. 43. 6
16		39. 47. 48	38. 12. 29	36. 37. 11	35. 1. 54
17		61. 45. 26	60. 2. 4	58. 18. 20	56. 34. 13
18	Regulus.	47. 48. 19	46. 2. 8	44. 15. 40	42. 28. 56
19		33. 31. 40	31. 43. 43	29. 55. 41	28. 7. 34
20		72. 16. 0	70. 24. 54	68. 33. 42	66. 42. 22
21	Spica ♍	57. 24. 32	55. 32. 50	53. 41. 9	51. 49. 29
22		42. 32. 9	40. 40. 55	38 49. 49	36. 58. 51
23		27. 46. 38	25. 56. 44	24. 7. 7	22. 17. 43
24		59. 5. 57	57. 19. 11	55. 32. 45	53. 46. 37
25	Antares.	45. 1. 10	43. 17. 13	41. 33. 41	39. 50. 36
26		31. 22. 1			
24		117. 14. 21	115. 34. 30	113. 54. 54	112. 15. 33
25		104. 2. 57	102. 25. 18	100. 47. 56	99. 10. 50
26		91. 9. 39	89. 34. 18	87. 59. 14	86. 24. 28
27	The Sun.	78. 34. 55	77. 1. 51	75. 29. 3	73. 56. 31
28		66. 17. 52	64. 46. 56	63. 16. 16	61. 45. 50
29		54. 17. 20	52. 48. 20	51. 19. 35	49. 51. 5
30		42. 32. 8	41. 5. 2	39. 38. 10	

Diſtances of ☽'s Center from ☉, and from Stars weſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
1		38. 18. 31	39. 58. 55	41. 39. 9	43. 19. 13
2	Spica ♍	51. 36. 49	53. 15. 48	54. 54. 35	56. 33. 11
3		64. 43. 14			
8		40. 2. 11	41. 23. 39	42. 45. 3	44. 6. 22
9		50. 51. 47	52. 12. 37	53. 33. 26	54. 54. 10
10		61. 37. 24	62. 57. 59	64. 18. 33	65. 39. 9
11	The Sun.	72. 22. 33	73. 43. 21	75. 4. 14	76. 25. 11
12		83. 11. 33	84. 33. 11	85. 54. 59	87. 16. 56
13		94. 9. 23	95. 32. 29	96. 55. 49	98. 19. 23
14		105. 21. 5	106. 46. 14	108. 11. 41	109. 37. 26
15		116. 51. 6	118. 18. 50	119. 46. 56	121. 15. 23
13		59. 16. 12	60. 35. 6	61. 54. 29	63. 14. 27
14	Fomal-haut.	70. 1. 35	71. 24. 23	72. 47. 39	74. 11. 20
15		81. 16. 16			
15		63. 52. 44	65. 24. 5	66. 55. 54	68. 28. 9
16	α Pegaſi.	76. 16. 14	77. 51. 11	79. 26. 35	81. 2. 25
17		45. 32. 4	47. 11. 22	48. 51. 12	50. 31. 36
18	α Arietis.	59. 1. 15	60. 44. 36	62. 28. 25	64. 12. 39
19		39. 29. 42	41. 17. 42	43. 6. 1	44. 54. 39
20	Aldeba-	54. 2. 0	55. 52. 13	57. 42. 37	59. 33. 13
21	ran.	68. 48. 30	70. 39. 54	72. 31. 21	74. 22. 51
22		83. 40. 39			
22		42. 0. 58	43. 47. 36	45. 34. 29	47. 21. 34
23	Pollux.	56. 18. 47	58. 6. 16	59. 53. 42	61. 41. 4
24		70. 36. 14			
24		33. 39. 21	35. 27. 2	37. 14. 35	39. 1. 58
25	Regulus.	47. 56. 1	49. 42. 10	51. 28. 3	53. 13. 41
26		61. 57. 51	63. 41. 53	65. 25. 39	67. 9. 8
27		75. 42. 18			
27		21. 53. 41	23. 35. 46	25. 17. 36	26. 59. 9
28		35. 23. 5	37. 3. 4	38. 42. 48	40. 22. 17
29	Spica ♍	48. 35. 56	50. 13. 57	51. 51. 45	53. 29. 18
30		61. 33. 52	63. 10. 7	64. 46. 9	66. 22. 0
31		74. 18. 23			
31	Antares.	29. 31. 57	31. 3. 42	32. 35. 27	34. 7. 13
F. 1		41. 46. 16			

Diſtances of ☽'s Center from ☉, and from Stars weſt of her.

Days.	Stars Names.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	Spica ♍	44. 59. 6	46. 38. 48	48. 18. 19	49. 57. 40
2		58. 11. 35	59. 49. 47	61. 27. 48	63. 5. 37
8		45. 27. 36	46. 48. 49	48. 9. 50	49. 30. 51
9		56. 14. 52	57. 35. 32	58. 56. 11	60. 16. 48
10		66. 59. 45	68. 20. 23	69. 41. 4	71. 1. 47
11	The Sun.	77. 46. 13	79. 7. 23	80. 28. 39	81. 50. 3
12		88. 39. 3	90. 1. 20	91. 23. 47	92. 46. 30
13		99. 43. 11	101. 7. 15	102. 31. 36	103. 56. 12
14		111. 3. 30	112. 29. 54	113. 56. 38	115. 23. 42
12	Fomal-	54. 6. 21	55. 22. 55	56. 40. 7	57. 57. 52
13	haut.	64. 34. 55	65. 55. 52	67. 17. 18	68. 39. 12
14		75. 35. 29	77. 0. 3	78. 25. 2	79. 50. 26
15	ε Pegaſi.	70. 0. 52	71. 34. 2	73. 7. 39	74. 41. 43
16		82. 38. 41			
16		39. 0. 54	40. 37. 46	42. 15. 15	43. 53. 22
17	α Arietis.	52. 12. 32	53. 53. 59	55. 35. 55	57. 18. 20
18		65. 57. 18			
18		32. 21. 17	34. 7. 50	35. 54. 4	37. 42. 3
19	Aldeba-	46. 43. 35	48. 32. 48	50. 22. 17	52. 12. 1
20	ran.	61. 24. 0	63. 14. 56	65. 6. 0	66. 57. 11
21		76. 14. 25	78. 5. 59	79. 57. 34	81. 49. 7
22	Pollux.	49. 8. 50	50. 56. 13	52. 43. 42	54. 31. 14
23		63. 28. 21	65. 15. 32	67. 2. 35	68. 49. 20
24		40. 49. 10	42. 36. 12	44. 23. 1	46. 9. 37
25	Regulus.	54. 59. 4	56. 44. 10	58. 29. 1	60. 13. 33
26		68. 52. 21	70. 35. 16	72. 17. 53	74. 0. 14
27		28. 40. 28	30. 21. 30	32. 2. 18	33. 42. 49
28	Spica ♍	42. 1. 30	43. 40. 28	45. 19. 12	46. 57. 41
29		55. 6. 39	56. 43. 47	58. 20. 42	59. 57. 23
30		67. 57. 38	69. 33. 6	71. 8. 23	72. 43. 28
31	Antares.	35. 39. 2	37. 10. 50	38. 42. 40	40. 14. 25

JUPITER's Satellites will not be viſible this Month, JUPITER being too near the SUN.

Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	Sa.	[of Vir. Mary.
2	*Su.*	*4th Su. after Epiph. Pur.*
3	M.	Blas. On mor. of Purif.
4	Tu.	[3 ret.
5	W.	Agatha.
6	Th.	
7	F.	
8	Sa.	
9	*Su.*	*5th Su. after Epiph.* In 8
10	M.	[days of Purif. 4 ret.
11	Tu.	
12	W.	Term ends.
13	Th.	
14	F.	Valentine.
15	Sa.	
16	*Su.*	*Septuagesima-Sunday.*
17	M.	
18	Tu.	
19	W.	
20	Th.	
21	F.	
22	Sa.	
23	*Su.*	*Sexagesima-Sunday.*
24	M.	*St. Matthias.*
25	Tu.	
26	W.	
27	Th.	
28	F.	
29	Sa.	

Phases of the Moon.

	D.	H.	M.
New Moon	3.	4.	57
First Quarter	11.	10.	17
Full Moon	18.	9.	18
Last Quarter	25.	1.	20

Other Phenomena.

D.

2. ☾ ☌ ♍ 2h. 10′.
7. ☿ ☌ ♒ diff. Lat. 19′.
☾ ☌ ♓ 22h. 41′.
8. ☾ ☌ ♓ Im. 6h. 20′. Em. 7h. 29′. * paſſes 4′. N. of ☽'s Center.
11. ♄ ☍ ♌ diff. Lat. 1°. 8′.
12. ☾ ☌ ♉ 10h. 15′.
17. ☾ 2 ad ☍ ♋ 2h. 28′.
☾ ☍ ♋ Im. 4h. 48½′. Em. 5h. 41′. * paſſes 5′. S. of ☽'s Center.
☾ ☌ ♌ 19h. 25′.
18. ☾ ☍ ♌ 3h. 26′.
☉ enters ♓ at 12h. 33′.
21. ☾ ☍ ♍ Im. 18h. 12½′. Em. 18h. 52′. * paſſes 11½′. S. of ☽'s Center.
22. ☾ ☌ ♍ 17h. 32′.
23. ☾ ☍ ♎ 5h. 57′.
☾ 4 ad ☾ ♎ 23h. 8′.
29. ☾ ☌ ♈ 8h. 1′.
♂ ☌ ♆ diff. Lat. 56′.

FEBRUARY 1772.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. South.	Equat. of Time. Add.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	Sa.	10. 12. 17. 18	20. 59. 1,8	17. 7. 58	14. 2,7	7,5
2	*Su.*	10. 13. 18. 9	21. 3. 5,9	16. 50. 45	14. 10,2	6,8
3	M.	10. 14. 19. 0	21. 7. 9,2	16. 33. 15	14. 17,0	5,9
4	Tu.	10. 15. 19. 49	21. 11. 11,7	16. 15. 27	14. 22,9	5,2
5	W.	10. 16. 20. 37	21. 15. 13,5	15. 57. 22	14. 28,1	4,3
6	Th.	10. 17. 21. 24	21. 19. 14,3	15. 39. 1	14. 32,4	3,5
7	F.	10. 18. 22. 9	21. 23. 14,4	15. 20. 24	14. 35,9	2,7
8	Sa.	10. 19. 22. 52	21. 27. 13,6	15. 1. 32	14. 38,6	1,8
9	*Su.*	10. 20. 23. 34	21. 31. 12,1	14. 42. 24	14. 40,4	1,0
10	M.	10. 21. 24. 14	21. 35. 9,6	14. 23. 2	14. 41,4	0,2
11	Tu.	10. 22. 24. 52	21. 39. 6,3	14. 3. 26	14. 41,6	0,6
12	W.	10. 23. 25. 28	21. 43. 2,3	13. 43. 36	14. 41,0	1,4
13	Th.	10. 24. 26. 2	21. 46. 57,5	13. 23. 33	14. 39,6	2,2
14	F.	10. 25. 26. 35	21. 50. 51,9	13. 3. 17	14. 37,4	2,8
15	Sa.	10. 26. 27. 6	21. 54. 45,5	12. 42. 48	14. 34,6	3,6
16	*Su.*	10. 27. 27. 34	21. 58. 38,4	12. 22. 7	14. 31,0	4,5
17	M.	10. 28. 28. 1	22. 2. 30,5	12. 1. 14	14. 26,5	5,1
18	Tu.	10. 29. 28. 26	22. 6. 22,0	11. 40. 10	14. 21,4	5,8
19	W.	11. 0. 28. 50	22. 10. 12,7	11. 18. 55	14. 15,6	6,4
20	Th.	11. 1. 29. 12	22. 14. 2,9	10. 57. 30	14. 9,2	7,2
21	F.	11. 2. 29. 33	22. 17. 52,3	10. 35. 54	14. 2,0	7,7
22	Sa.	11. 3. 29. 52	22. 21. 41,1	10. 14. 8	13. 54,3	8,4
23	*Su.*	11. 4. 30. 9	22. 25. 29,2	9. 52. 14	13. 45,9	8,9
24	M.	11. 5. 30. 25	22. 29. 16,8	9. 30. 10	13. 37,0	9,6
25	Tu.	11. 6. 30. 40	22. 33. 3,8	9. 7. 57	13. 27,4	10,0
26	W.	11. 7. 30. 53	22. 36. 50,2	8. 45. 36	13. 17,4	10,7
27	Th.	11. 8. 31. 4	22. 40. 36,1	8. 23. 8	13. 6,7	11,2
28	F.	11. 9. 31. 14	22. 44. 21,4	8. 0. 32	12. 55,4	11,6
29	Sa.	11. 10. 31. 23	22. 48. 6,3	7. 37. 48	12. 43,8	12,1

Days of the Month.	Semidiameter of the Sun.	Time of D° passing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Diſtance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	16. 16, 6	1. 8, 1	2. 32, 2	9. 993834	7. 3. 8
7	16. 15, 6	1. 7, 4	2. 31, 8	9. 994285	7. 2. 49
13	16. 14, 4	1. 6, 8	2. 31, 5	9. 994777	7. 2. 30
19	16. 13, 1	1. 6, 1	2. 31, 0	9. 995338	7. 2. 11
25	16. 11, 7	1. 5, 6	2. 30, 5	9. 995972	7. 1. 51

The Eclipſes of JUPITER's Satellites will not be viſible this Month, JUPITER being too near the SUN.

Days	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Pass. over Merid
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
	MERCURY. Greatest Elong. 16d.					
1	5. 20. 17	5. 46 N	9. 23. 39	3. 0 N	18. 26 S	22. 39
7	6. 13. 16	3. 45	9. 24. 13	1. 53	19. 27	22. 18
13	7. 3. 0	1. 32 N	9. 28. 10	0. 44 N	19. 50	22. 13
19	7. 29. 44	0. 37 S	10. 4. 11	0. 17 S	19. 31	22. 16
25	8. 7. 27	2. 36	10. 11. 31	1. 6	18. 25	22. 25
	VENUS.					
1	0. 10. 22	3. 3 S	11. 6. 28	1. 28 S	10. 31 S	1. 36
7	0. 19. 56	2. 46	11. 13. 55	1. 21	7. 34	1. 39
13	0. 29. 32	2. 24	11. 21. 21	1. 12	4. 32	1. 43
19	1. 9. 8	1. 59	11. 28. 44	1. 0	1. 26 S	1. 47
25	1. 18. 45	1. 29	0. 6. 6	0. 46	1. 43 N	1. 51
	MARS.					
1	9. 11. 50	1. 30 S	9. 24. 13	0. 55 S	22. 12 S	22. 45
7	9. 15. 26	1. 34	9. 28. 50	0. 57	21. 20	22. 41
13	9. 19. 4	1. 38	10. 3. 29	0. 59	20. 21	22. 37
19	9. 22. 43	1. 41	10. 8. 9	1. 2	19. 14	22. 33
25	9. 26. 22	1. 44	10. 12. 50	1. 4	18. 1	22. 29
	JUPITER.					
1	10. 9. 59	0. 42 S	10. 10. 22	0. 35 S	18. 13 S	23. 51
7	10. 10. 30	0. 42	10. 11. 48	0. 35	17. 50	23. 33
13	10. 11. 2	0. 43	10. 13. 12	0. 36	17. 26	23. 15
19	10. 11. 33	0. 43	10. 14. 37	0. 36	17. 3	22. 58
25	10. 12. 5	0. 44	10. 16. 0	0. 37	16. 39	22. 40
	SATURN. ☍ 14d. 21h.					
1	4. 25. 50	1. 24 N	4. 27. 26	1. 35 N	13. 51 N	13. 9
7	4. 26. 2	1. 25	4. 26. 59	1. 35	14. 2	12. 34
13	4. 26. 16	1. 26	4. 26. 29	1. 36	14. 12	12. 0
19	4. 26. 29	1. 26	4. 25. 59	1. 36	14. 23	11. 48
25	4. 26. 41	1. 27	4. 25. 30	1. 37	14. 34	11. 18

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midnight.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
1	Sa.	9. 17. 20. 10	9. 23. 33. 57	4. 49. 43 N	4. 56. 34 N
2	*Su.*	9. 29. 45. 20	10. 5. 54. 24	4. 59. 45	4. 59. 38
3	M.	10. 12. 1. 11	10. 18. 5. 50	4. 55. 58	4. 48. 53
4	Tu.	10. 24. 8. 21	11. 0. 8. 57	4. 38. 38	4. 25. 16
5	W.	11. 6. 7. 40	11. 12. 4. 50	4. 9. 0	3. 50. 0
6	Th.	11. 18. 0. 35	11. 23. 55. 15	3. 28. 36	3. 5. 0
7	F.	11. 29. 49. 9	0. 5. 42. 47	2. 39. 25	2. 12. 3
8	Sa.	0. 11. 36. 29	0. 17. 30. 50	1. 43. 18	1. 13. 17
9	*Su.*	0. 23. 26. 26	0. 29. 23. 45	0. 42. 22 N	0. 10. 48 N
10	M.	1. 5. 23. 32	1. 11. 26. 26	0. 21. 7 S	0. 53. 7 S
11	Tu.	1. 17. 33. 2	1. 23. 44. 8	1. 24. 49	1. 55. 56
12	W.	2. 0. 0. 19	2. 6. 22. 10	2. 26. 3	2. 54. 51
13	Th.	2. 12. 50. 24	2. 19. 25. 24	3. 21. 52	3. 46. 41
14	F.	2. 26. 7. 38	3. 2. 57. 22	4. 8. 50	4. 27. 51
15	Sa.	3. 9. 54. 38	3. 16. 59. 25	4. 43. 19	4. 54. 42
16	*Su.*	3. 24. 11. 24	4. 1. 30. 7	5. 1. 39	5. 3. 49
17	M.	4. 8. 54. 45	4. 16. 24. 24	5. 0. 57	4. 52. 54
18	Tu.	4. 23. 57. 50	5. 1. 33. 51	4. 39. 41	4. 21. 24
19	W.	5. 9. 10. 57	5. 16. 47. 51	3. 58. 26	3. 31. 11
20	Th.	5. 24. 23. 15	6. 1. 55. 49	3. 0. 16	2. 26. 19
21	F.	6. 9. 24. 31	6. 16. 48. 27	1. 50. 4	1. 12. 15 S
22	Sa.	6. 24. 7. 2	7. 1. 19. 46	0. 33. 39 S	0. 4. 57 N
23	*Su.*	7. 8. 26. 19	7. 15. 26. 38	0. 43. 0 N	1. 19. 53
24	M.	7. 22. 20. 51	7. 29. 8. 59	1. 55. 4	2. 28. 6
25	Tu.	8. 5. 51. 26	8. 12. 28. 27	2. 58. 36	3. 26. 16
26	W.	8. 19. 0. 20	8. 25. 27. 36	3. 50. 51	4. 12. 11
27	Th.	9. 1. 50. 31	9. 8. 9. 30	4. 30. 9	4. 44. 36
28	F.	9. 14. 24. 58	9. 20. 37. 19	4. 55. 27	5. 2. 45
29	Sa.	9. 26. 46. 48	10. 2. 53. 35	5. 6. 26	5. 6. 35

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſſage over Merid.	☽'s Right Aſcen. at Noon.	☽'s Right Aſc. at Midn.	☽'s Declination at Noon.	☽'s Declination at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	Sa.	29	22. 58	288. 8	294. 33	17. 33 S	16. 32 S
2	*Su.*	30	23. 45	300. 50	307. 1	15. 20	13. 58
3	M.	1	0	313. 4	319. 2	12. 28	10. 50
4	Tu.	2	0. 29	324. 54	330. 49	9. 6	7. 17
5	W.	3	1. 12	336. 22	342. 1	5. 25	3. 30 S
6	Th.	4	1. 54	347. 37	353. 12	1. 33 S	0. 25 N
7	F.	5	2. 36	358. 46	4. 22	2. 22 N	4. 17
8	Sa.	6	3. 18	10. 0	15. 40	6. 11	8. 1
9	*Su.*	7	4. 2	21. 25	27. 16	9. 46	11. 26
10	M.	8	4. 47	33. 13	39. 17	13. 0	14. 26
11	Tu.	9	5. 34	45. 29	51. 51	15. 44	16. 51
12	W.	10	6. 24	58. 22	65. 2	17. 48	18. 32
13	Th.	11	7. 16	71. 51	78. 48	19. 2	19. 17
14	F.	12	8. 11	85. 54	93. 7	19. 16	18. 58
15	Sa.	13	9. 8	100. 25	107. 46	18. 22	17. 30
16	*Su.*	14	10. 5	115. 10	122. 35	16. 20	14. 54
17	M.	15	11. 3	130. 0	137. 22	13. 12	11. 17
18	Tu.	16	12. 0	144. 43	152. 1	9. 9	6. 51
19	W.	17	12. 56	159. 17	166. 29	4. 27 N	1. 59 N
20	Th.	18	13. 51	173. 40	180. 49	0. 31 S	3. 0 S
21	F.	19	14. 46	187. 55	195. 1	5. 25	7. 43
22	Sa.	20	15. 41	202. 7	209. 13	9. 53	11. 52
23	*Su.*	21	16. 36	216. 18	223. 23	13. 39	15. 13
24	M.	22	17. 31	230. 27	237. 29	16. 31	17. 35
25	Tu.	23	18. 25	244. 30	251. 28	18. 23	18. 55
26	W.	24	19. 17	258. 21	265. 10	19. 11	19. 11
27	Th.	25	20. 8	271. 56	278. 35	18. 57	18. 29
28	F.	26	20. 57	285. 6	291. 30	17. 47	16. 54
29	Sa.	27	21. 45	297. 48	303. 59	15. 49	14. 33

Days of the Month.	Days of the Week.	Semidr. ☽ at Noon.	Semidr. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	Sa.	15. 8	15. 5	55. 33	55. 20	5106	5123
2	*Su.*	15. 1	14. 58	55. 7	54. 56	5140	5154
3	M.	14. 55	14. 53	54. 46	54. 37	5167	5179
4	Tu.	14. 51	14. 49	54. 29	54. 21	5190	5201
5	W.	14. 47	14. 46	54. 16	54. 13	5207	5211
6	Th.	14. 45	14. 45	54. 9	54. 8	5217	5218
7	F.	14. 45	14. 46	54. 8	54. 11	5218	5214
8	Sa.	14. 47	14. 49	54. 15	54. 22	5209	5199
9	*Su.*	14. 51	14. 54	54. 31	54. 42	5187	5173
10	M.	14. 58	15. 3	54. 56	55. 12	5154	5133
11	Tu.	15. 7	15. 13	55. 30	55. 51	5110	5082
12	W.	15. 19	15. 26	56. 14	56. 39	5053	5021
13	Th.	15. 33	15. 41	57. 5	57. 33	4987	4952
14	F.	15. 49	15. 57	58. 2	58. 31	4916	4880
15	Sa.	16. 4	16. 12	58. 59	59. 27	4845	4811
16	*Su.*	16. 19	16. 26	59. 54	60. 18	4778	4750
17	M.	16. 31	16. 36	60. 39	60. 56	4724	4704
18	Tu.	16. 40	16. 42	61. 10	61. 19	4687	4677
19	W.	16. 43	16. 43	61. 22	61. 22	4673	4673
20	Th.	16. 42	16. 39	61. 16	61. 7	4680	4691
21	F.	16. 35	16. 30	60. 52	60. 35	4709	4729
22	Sa.	16. 25	16. 18	60. 14	59. 52	4754	4781
23	*Su.*	16. 12	16. 5	59. 27	59. 2	4811	4842
24	M.	15. 58	15. 51	58. 36	58. 11	4874	4905
25	Tu.	15. 44	15. 37	57. 45	57. 20	4937	4968
26	W.	15. 31	15. 25	56. 56	56. 34	4999	5027
27	Th.	15. 19	15. 14	56. 14	55. 54	5053	5079
28	F.	15. 9	15. 5	55. 36	55. 21	5102	5122
29	Sa.	15. 1	14. 57	55. 6	54. 53	5141	5158

Distances of ☽'s Center from ⊙, and from Stars east of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
5		58. 7. 53	56. 40. 31	55. 13. 19	53. 46. 17
6	♈ Arietis,	46. 33. 31	45. 7. 27	43. 41. 35	42. 15. 56
7		35. 11. 4	33. 46. 54	32. 23. 3	30. 59. 38
8		24. 10. 34			
8		55. 24. 11	53. 55. 35	52. 26. 54	50. 58. 7
9	Aldeba-	43. 33. 1	42. 3. 45	40. 34. 20	39. 4. 50
10	ran.	31. 35. 6	30. 4. 41	28. 34. 5	27. 3. 20
11		19. 27. 3			
11		62. 55. 40	61. 25. 28	59. 55. 5	58. 24. 30
12	Pollux.	50. 48. 36	49. 16. 51	47. 44. 57	46. 12. 53
13		38. 30. 34			
13		73. 53. 19	72. 15. 37	70. 37. 30	68. 58. 59
14	Regulus.	60. 40. 5	58. 59. 2	57. 17. 32	55. 35. 58
15		46. 59. 48	45. 15. 23	43. 30. 35	41. 45. 24
16		32. 54. 10	31. 7. 2	29. 19. 38	27. 32. 6
17		71. 39. 15	69. 47. 42	67. 55. 51	66. 3. 44
18		56. 39. 23	54. 45. 53	52. 52. 14	50. 58. 28
19	Spica ♍	41. 28. 16	39. 34. 6	37. 39. 58	35. 45. 52
20		26. 16. 27	24. 22. 58	22. 29. 40	20. 36. 36
21		11. 15. 24			
21		57. 8. 20	55. 17. 57	53. 27. 55	51. 38. 15
22	Antares.	42. 36. 6	40. 49. 3	39. 2. 33	37. 16. 37
23		28. 36. 25			
23		81. 2. 23	79. 25. 57	77. 49. 57	76. 14. 27
24	♐ Aquilæ.	68. 24. 42	66. 52. 29	65. 20. 51	63. 49. 52
25		56. 25. 6			
23		116. 3. 42	114. 25. 31	112. 47. 44	111. 10. 19
24		103. 9. 7	101. 34. 3	99. 59. 23	98. 25. 5
25		90. 39. 11	89. 7. 6	87. 35. 21	86. 3. 58
26	The Sun.	78. 32. 8	77. 2. 43	75. 33. 36	74. 4. 48
27		66. 45. 7	65. 18. 1	63. 51. 10	62. 24. 34
28		55. 15. 7	53. 49. 52	52. 24. 50	51. 0. 0
29		43. 58. 51	42. 35. 11	41. 11. 41	39. 48. 22

Diſtances of ☽'s Center from ☉, and from Stars eaſt of her.

Days.	Stars Names.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
5		52. 19. 25	50. 52. 42	49. 26. 8	47. 59. 44
6	α Arietis.	40. 50. 28	39. 25. 13	38. 0. 14	36. 35. 31
7		29. 36. 41	28. 14. 15	26. 52. 23	25. 31. 9
8		49. 29. 15	48. 0. 20	46. 31. 19	45. 2. 13
9	Aldebaran.	37. 35. 11	36. 5. 23	34. 35. 27	33. 5. 21
10		25. 32. 25	24. 1. 17	22. 30. 1	20. 58. 36
11		56. 53. 44	55. 22. 44	53. 51. 33	52. 20. 10
12	Pollux.	44. 40. 39	43. 8. 18	41. 35. 50	40. 3. 15
13		67. 20. 2	65. 40. 41	64. 0. 54	62. 20. 42
14	Regulus.	53. 53. 18	52. 10. 33	50. 27. 23	48. 43. 48
15		39. 59. 50	38. 13. 53	36. 27. 37	34. 41. 3
16		25. 44. 16			
16		79. 2. 5	77. 11. 55	75. 21. 22	73. 30. 29
17		64. 11. 19	62. 18. 39	60. 25. 47	58. 32. 41
18	Spica ♍	49. 4. 33	47. 10. 33	45. 16. 33	43. 22. 25
19		33. 51. 47	31. 57. 46	30. 3. 53	28. 10. 6
20		18. 43. 46	16. 51. 12	14. 58. 56	13. 6. 59
21	Antares.	49. 48. 57	48. 0. 3	46. 11. 37	44. 23. 38
22		35. 31. 15	33. 46. 31	32. 2. 28	30. 19. 5
23	α Aquilæ.	74. 39. 25	73. 4. 54	71. 30. 57	69. 57. 32
24		62. 19. 32	60. 49. 52	59. 20. 53	57. 52. 37
22			121. 0. 32	119. 21. 12	117. 42. 16
23		109. 33. 18	107. 56. 41	106. 20. 26	104. 44. 35
24		96. 51. 10	95. 17. 40	93. 44. 27	92. 11. 38
25	The Sun.	84. 32. 55	83. 2. 11	81. 31. 49	80. 1. 48
26		72. 36. 17	71. 8. 4	69. 40. 8	68. 12. 29
27		60. 58. 13	59. 32. 6	58. 6. 13	56. 40. 33
28		49. 35. 23	48. 10. 58	46. 46. 44	45. 22. 42

Distances of ☽'s Center from ☉, and from Stars west of her.

Days	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	Antares.	41. 46. 15	43. 18. 0	44. 49. 37	46. 21. 9
7		41. 31. 10	42. 51. 30	44. 11. 52	45. 32. 15
8		52. 14. 48	53. 35. 30	54. 56. 17	56. 17. 9
9		63. 3. 0	64. 24. 30	65. 46. 8	67. 7. 55
10	The Sun.	73. 59. 19	75. 22. 10	76. 45. 13	78. 8. 29
11		85. 8. 15	86. 32. 59	87. 58. 1	89. 23. 20
12		96. 34. 29	98. 1. 41	99. 29. 15	100. 57. 10
13		108. 22. 24	109. 52. 37	111. 23. 14	112. 54. 16
14		120. 35. 42			
12	α Pegasi.	71. 45. 59	73. 17. 3	74. 48. 30	76. 20. 19
13		84. 5. 34			
13		40. 27. 52	42. 2. 25	43. 37. 33	45. 13. 17
14	α Arietis.	53. 20. 36	54. 59. 45	56. 39. 25	58. 19. 36
15		66. 48. 16			
15		33. 10. 27	34. 55. 19	36. 40. 38	38. 26. 26
16	Aldeba-	47. 22. 14	49. 10. 43	50. 59. 36	52. 48. 53
17	ran.	62. 0. 52	63. 52. 19	65. 44. 3	67. 36. 5
18		76. 59. 59	78. 53. 24	80. 46. 56	82. 40. 39
19		50. 9. 18	51. 59. 36	53. 50. 3	55. 40. 40
20	Pollux.	64. 54. 49	66. 45. 35	68. 36. 15	70. 26. 49
21		79. 37. 19			
21		42. 47. 30	44. 38. 25	46. 29. 5	48. 19. 29
22	Regulus.	57. 27. 12	59. 15. 48	61. 4. 2	62. 51. 55
23		71. 45. 46	73. 31. 22	75. 16. 36	77. 1. 25
24		85. 39. 46			
24		31. 54. 59	33. 37. 47	35. 20. 11	37. 2. 14
25		45. 26. 54	47. 6. 43	48. 46. 12	50. 25. 19
26	Spica ♍	58. 35. 49	60. 12. 58	61. 49. 49	63. 26. 22
27		71. 24. 42	72. 59. 34	74. 34. 12	76. 8. 34
28		83. 56. 54			
28		38. 57. 10	40. 28. 14	41. 59. 13	43. 30. 7
29	Antares.	51. 3. 8	52. 33. 25	54. 3. 36	55. 33. 39
M.1		63. 2. 34			

Diſtances of ☽'s Center from ☉, and from Stars weſt of her.

Days.	Stars Names.	12 Hours. D. M. S.	15 Hours. D. M. S.	18 Hours. D. M. S.	21 Hours. D. M. S.
1	Antares.	47. 52. 36			
7		46. 52. 40	48. 13. 7	49. 33. 37	50. 54. 11
8		57. 38. 6	58. 59. 9	60. 20. 20	61. 41. 36
9		68. 29. 51	69. 51. 57	71. 14. 13	72. 36. 41
10	The Sun.	79. 31. 58	80. 55. 38	82. 19. 36	83. 43. 48
11		90. 48. 56	92. 14. 50	93. 41. 4	95. 7. 37
12		102. 25. 26	103. 54. 6	105. 23. 8	106. 52. 35
13		114. 25. 42	115. 57. 33	117. 29. 50	119. 2. 33
11	α Pegaſi.	65. 45. 51	67. 15. 15	68. 45. 4	70. 15. 19
12		77. 52. 30	79. 25. 8	80. 58. 12	82. 31. 41
13	α Arietis.	46. 49. 37	48. 26. 31	50. 3. 59	51. 42. 1
14		60. 0. 19	61. 41. 33	63. 23. 17	65. 5. 31
15		40. 12. 42	41. 59. 25	43. 46. 35	45. 34. 11
16	Aldeba-	54. 38. 34	56. 28. 37	58. 19. 1	60. 9. 46
17	ran.	69. 28. 24	71. 20. 58	73. 13. 45	75. 6. 46
18		84. 34. 30			
18		42. 50. 59	44. 40. 4	46. 29. 31	48. 19. 16
19	Pollux.	57. 31. 26	59. 22. 16	61. 13. 6	63. 3. 58
20		72. 17. 17	74. 7. 36	75. 57. 45	77. 47. 40
21		50. 9. 36	51. 59. 28	53. 49. 1	55. 38. 16
22	Regulus.	64. 39. 27	66. 26. 36	68. 13. 22	69. 59. 45
23		78. 45. 52	80. 29. 55	82. 13. 36	83. 56. 52
24		38. 43. 54	40. 25. 12	42. 6. 8	43. 46. 42
25	Spica ♍	52. 4. 5	53. 42. 30	55. 20. 36	56. 58. 22
26		65. 2. 37	66. 38. 33	68. 14. 12	69. 49. 35
27		77. 42. 42	79. 16. 36	80. 50. 16	82. 23. 42
28	Antares.	45. 0. 55	46. 31. 38	48. 2. 14	49. 32. 44
29		57. 3. 35	58. 33. 28	60. 3. 15	61. 32. 57

JUPITER's Satellites will not be viſible this Month, being too near the SUN.

Days of the Month.	Days of the Week.	Sundays, Holidays, &c.	Phaſes of the Moon.
1	*Su.*	*Quinquageſ.* or *Shrove Su.*	D. H. M.
2	M.	Chad. [*David.*	New Moon — 3. 23. 16
3	Tu.		Firſt Quarter — 12. 1. 54
4	W.	Aſh-Wedneſday.	Full Moon — 18. 19. 1
5	Th.	*Prs. of Heſſe born.*	Laſt Quarter — 25. 14. 22
6	F.		
7	Sa.	Perpetua.	
8	*Su.*	*1ſt Sunday in Lent.*	Other Phenomena.
9	M.		D.
10	Tu.		1. ☿ ☿ ♂ diff. Lat. 29′.
11	W.		4. ♀ ♌ ♓ diff. Lat. 8′.
12	Th.	Gregory M.	6. ☾ ☌ ♓ 5ʰ. 4′.
13	F.		☾ ☌ ♓ 12ʰ. 3′.
14	Sa.		☾ ♀ 22ʰ. 15′. diff. Lat. 1°. 9½′.
15	*Su.*	*2d Sunday in Lent.*	10. ☾ 1 ad ☌ ♉ 14ʰ. 9′.
16	M.		☾ 2 ad ☌ ♉ 14ʰ. 42′.
17	Tu.		☾ ☌ ♉ 17ʰ. 16′.
18	W.	Edw. K. of Weſt-Sax.	15. ☾ 1 ad ☍ ♋ 12ʰ. 23′.
19	Th.		☾ 2 ad ☍ ♋ 13ʰ. 15′.
20	F.		☾ ☍ ♋ 17ʰ. 24′.
21	Sa.	Benedict.	16. ☾ ☌ ♌ 6 . 34′.
22	*Su.*	*3d Sunday in Lent.*	☾ ☌ ♑ 14ʰ. 42′.
23	M.		19. ☉ enters ♈ at 13ʰ. 2′.
24	Tu.		20. ☾ ☍ ♍ 4ʰ. 52′.
25	W.	*Annunciat. of the V. Mary.*	21. ☾ ☍ ♍ 1ʰ. 58′.
26	Th.		☾ ☌ ♎ Im. 14ʰ. 26¾′. Em. 15ʰ. 32′. * paſſes 6′. N. of ☽'s Center.
27	F.		
28	Sa.		
29	*Su.*	*4th Sunday in Lent, Mid-*	26. ☾ 4 ad ☌ ♎ 7ʰ. 56′.
30	M.	[*lent-Sunday.*	27. ☾ ☌ ♈ 14ʰ. 2′.
31	Tu.		30. ♀ ☌ ♈ diff. Lat. 48′.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. South.	Equat. of Time. Add.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	*Su.*	11. 11. 31. 30	22.51.50,6	7. 14. 58	12. 31,7	12,7
2	M.	11. 12. 31. 36	22.55.34,5	6. 52. 2	12. 19,0	13,1
3	Tu.	11. 13. 31. 40	22.59.17,9	6. 29. 0	12. 5,9	13,5
4	W.	11. 14. 31. 41	23. 3. 0,8	6. 5. 53	11. 52,4	14,1
5	Th.	11. 15. 31. 41	23. 6.43,3	5. 42. 41	11. 38,3	14,5
6	F.	11. 16. 31. 38	23.10.25,4	5. 19. 24	11. 23,8	14,8
7	Sa.	11. 17. 31. 34	23.14. 7,0	4. 56. 3	11. 9,0	15,3
8	*Su.*	11. 18. 31. 28	23.17.48,3	4. 32. 38	10. 53,7	15,6
9	M.	11. 19. 31. 19	23.21.29,1	4. 9. 11	10. 38,1	16,0
10	Tu.	11. 20. 31. 8	23.25. 9,7	3. 45. 40	10. 22,1	16,4
11	W.	11. 21. 30. 54	23.28.49,9	3. 22. 6	10. 5,7	16,6
12	Th.	11. 22. 30. 39	23.32.29,7	2. 58. 31	9. 49,1	16,9
13	F.	11. 23. 30. 20	23.36. 9,3	2. 34. 54	9. 32,2	17,3
14	Sa.	11. 24. 30. 0	23.39.48,6	2. 11. 15	9. 14,9	17,5
15	*Su.*	11. 25. 29. 37	23.43.27,6	1. 47. 35	8. 57,4	17,7
16	M.	11. 26. 29. 12	23.47. 6,4	1. 23. 54	8. 39,7	17,9
17	Tu.	11. 27. 28. 45	23.50.45,0	1. 0. 13	8. 21,8	18,1
18	W.	11. 28. 28. 15	23.54.23,4	0. 36. 32	8. 3,7	18,3
19	Th.	11. 29. 27. 44	23.58. 1,6	0. 12. 51 NORTH.	7. 45,4	18,4
20	F.	0. 0. 27. 10	0. 1.39,7	0. 10. 49	7. 27,0	18,5
21	Sa.	0. 1. 26. 34	0. 5.17,6	0. 34. 28	7. 8,5	18,6
22	*Su.*	0. 2. 25. 57	0. 8.55,6	0. 58. 6	6. 49,9	18,7
23	M.	0. 3. 25. 18	0.12.33,4	1. 21. 42	6. 31,2	18,7
24	Tu.	0. 4. 24. 37	0.16.11,1	1. 45. 17	6. 12,5	18,7
25	W.	0. 5. 23. 54	0.19.49,0	2. 8. 49	5. 53,8	18,7
26	Th.	0. 6. 23. 10	0.23.26,8	2. 32. 19	5. 35,1	18,7
27	F.	0. 7. 22. 23	0.27. 4,6	2. 55. 46	5. 16,4	18,6
28	Sa.	0. 8. 21. 35	0.30.42,5	3. 19. 9	4. 57,8	18,6
29	*Su.*	0. 9. 20. 46	0.34.20,4	3. 42. 28	4. 39,2	18,5
30	M.	0. 10. 19. 54	0.37.58,4	4. 5. 44	4. 20,7	18,4
31	Tu.	0. 11. 19. 1	0.41.36,5	4. 28. 55	4. 2,3	18,2

Days.	Semidiameter of the Sun.	Time of D° passing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Distance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	16. 10, 5	1. 5, 3	2. 30, 1	9. 996533	7. 1. 36
7	16. 9, 0	1. 4, 8	2. 29, 7	9. 997226	7. 1. 16
13	16. 7, 4	1. 4, 5	2. 29, 2	9. 997921	7. 0. 57
19	16. 5, 7	1. 4, 4	2. 28, 7	9. 998651	7. 0. 38
25	16. 4, 1	1. 4, 3	2. 28, 3	9. 999412	7. 0. 19

Eclipses of the SATELLITES of JUPITER.

I. Satellite. Immersions.		II. Satellite. Immersions.		III. Satellite.		
D.	H. M. S.	D.	H. M. S.	D.	H. M. S.	
2	12. 13. 28	2	3. 30. 46	3	5. 51. 12	I
4	6. 42. 24	5	16. 49. 54	3	9. 26. 26	E
6	1. 11. 20	9	6. 9. 6	10	9. 52. 55	I
7	19. 40. 19	12	19. 28. 24	10	13. 28. 17	E
9	14. 9. 16	16	8. 47. 48	17	13. 54. 56	I
11	8. 38. 14	19	22. 7. 14	17	17*30. 24	E
13	3. 7. 12	23	11. 26. 42	24	17. 57. 4	I
14	21. 36. 13	27	0. 46. 12	24	21. 32. 37	E
16	16. 5. 14	30	14. 5. 39	31	21. 59. 7	I
18	10. 34. 15					
20	5. 3. 16					
21	23. 32. 16			IV. Satellite.		
23	18. 1. 16					
25	12. 30. 14			15	11. 19. 6	I
27	6. 59. 14			15	16. 4. 30	E
29	1. 28. 13					
30	19. 57. 12					

Days.	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Paſſage over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
			MERCURY. Sup. ☌ 31d. 20h.			
1	8. 21. 11	4. 4 S	10. 18. 21	1. 37 S	16. 53 S	22. 35
7	9. 8. 4	5. 32	10. 27. 17	2. 3	14. 21	22. 49
13	9. 26. 8	6. 35	11. 6. 56	2. 14	11. 3	23. 5
19	10. 16. 20	6. 59	11. 17. 20	2. 9	7. 0	23. 22
25	11. 9. 48	6. 23	11. 28. 30	1. 47	2. 14	23. 41
			VENUS.			
1	1. 26. 46	1. 2 S	0. 12. 13	0. 33 S	4. 20 N	1. 54
7	2. 6. 25	0. 29 S	0. 19. 31	0. 16 S	7. 25	1. 58
13	2. 16. 6	0. 5 N	0. 26. 47	0. 3 N	10. 23	2. 3
19	2. 25. 47	0. 39	1. 4. 0	0. 22	13. 13	2. 8
25	3. 5. 30	1. 13	1. 11. 11	0. 42	15. 52	2. 14
			MARS.			
1	9. 29. 27	1. 45 S	10. 16. 44	1. 6 S	16. 56 S	22. 26
7	10. 3. 10	1. 47	10. 21. 26	1. 8	15. 27	22. 22
13	10. 6. 54	1. 49	10. 26. 7	1. 9	13. 55	22. 18
19	10. 10. 39	1. 50	11. 0. 47	1. 10	12. 18	22. 14
25	10. 14. 26	1. 51	11. 5. 29	1. 11	10. 37	22. 11
			JUPITER.			
1	10. 12. 31	0. 44 S	10. 17. 9	0. 38 S	16. 19 S	22. 26
7	10. 13. 2	0. 45	10. 18. 30	0. 38	15. 55	22. 9
13	10. 13. 34	0. 45	10. 19. 50	0. 39	15. 30	21. 52
19	10. 14. 6	0. 46	10. 21. 7	0. 40	15. 6	21. 35
25	10. 14. 37	0. 47	10. 22. 22	0. 41	14. 43	21. 17
			SATURN.			
1	4. 26. 51	1. 27 N	4. 25. 7	1. 37 N	14. 41 N	10. 58
7	4. 27. 4	1. 27	4. 24. 40	1. 37	14. 51	10. 34
13	4. 27. 17	1. 28	4. 24. 16	1. 37	14. 59	10. 11
19	4. 27. 30	1. 28	4. 23. 54	1. 37	15. 6	9. 48
25	4. 27. 43	1. 29	4. 23. 34	1. 37	15. 42	9. 25

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midnight.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
1	*Su.*	10. 8. 58. 12	10. 15. 0. 50	5. 3. 15 N	4. 56. 34 N
2	M.	10. 21. 1. 42	10. 27. 0. 58	4. 46. 33	4. 33. 26
3	Tu.	11. 2. 58. 54	11. 8. 55. 33	4. 17. 21	3. 58. 28
4	W.	11. 14. 51. 21	11. 20. 46. 22	3. 37. 3	3. 13. 19
5	Th.	11. 26. 40. 40	0. 2. 34. 44	2. 47. 29	2. 19. 51
6	F.	0. 8. 28. 43	0. 14. 22. 48	1. 50. 41	1. 20. 15
7	Sa.	0. 20. 17. 34	0. 26. 13. 7	0. 48. 55 N	0. 16. 53 N
8	*Su.*	1. 2. 10. 9	1. 8. 8. 50	0. 15. 28 S	0. 47. 49 S
9	M.	1. 14. 9. 55	1. 20. 13. 38	1. 19. 55	1. 51. 22
10	Tu.	1. 26. 20. 49	2. 2. 31. 46	2. 21. 51	2. 51. 0
11	W.	2. 8. 47. 18	2. 15. 7. 42	3. 18. 28	3. 43. 51
12	Th.	2. 21. 33. 45	2. 28. 5. 45	4. 6. 51	4. 27. 1
13	F.	3. 4. 44. 17	3. 11. 29. 31	4. 43. 55	4. 57. 12
14	Sa.	3. 18. 21. 54	3. 25. 21. 21	5. 6. 31	5. 11. 27
15	*Su.*	4. 2. 27. 56	4. 9. 41. 17	5. 11. 44	5. 7. 6
16	M.	4. 17. 1. 13	4. 24. 26. 42	4. 57. 26	4. 42. 42
17	Tu.	5. 1. 57. 14	5. 9. 31. 34	4. 22. 56	3. 58. 21
18	W.	5. 17. 8. 39	5. 24. 47. 1	3. 29. 25	2. 56. 38
19	Th.	6. 2. 25. 27	6. 10. 2. 30	2. 20. 38	1. 42. 13
20	F.	6. 17. 36. 56	6. 25. 7. 37	1. 2. 9 S	0. 21. 17 S
21	Sa.	7. 2. 33. 32	7. 9. 53. 58	0. 19. 32 N	0. 59. 35 N
22	*Su.*	7. 17. 8. 12	7. 24. 15. 56	1. 38. 7	2. 14. 34
23	M.	8. 1. 16. 55	8. 8. 11. 9	2. 48. 24	3. 19. 13
24	Tu.	8. 14. 58. 38	8. 21. 39. 37	3. 46. 42	4. 10. 39
25	W.	8. 28. 14. 22	9. 4. 43. 18	4. 30. 55	4. 47. 23
26	Th.	9. 11. 6. 58	9. 17. 25. 34	5. 0. 0	5. 8. 49
27	F.	9. 23. 39. 50	9. 29. 49. 59	5. 13. 51	5. 15. 13
28	Sa.	10. 5. 56. 42	10. 12. 0. 24	5. 12. 57	5. 7. 12
29	*Su.*	10. 18. 1. 34	10. 24. 0. 33	4. 58. 7	4. 45. 47
30	M.	10. 29. 57. 54	11. 5. 53. 54	4. 30. 25	4. 12. 10
31	Tu.	11. 11. 48. 53	11. 17. 43. 18	3. 51. 17	3. 27. 59

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſſage over Merid.	☽'s Right Aſcen. at Noon.	☽'s Right Aſc. at Midn.	☽'s Declination at Noon.	☽'s Declination at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	*Su.*	28	22. 29	310. 2	316. 0	13. 9 S	11. 27 S
2	M.	29	23. 13	321. 53	327. 40	9. 58	8. 14
3	Tu.	30	23. 56	333. 23	339. 2	6. 25	4. 33
4	W.	1	☌	344. 39	350. 15	2. 38 S	0. 42 S
5	Th.	2	0. 38	355. 51	1. 26	1. 14 N	3. 9 N
6	F.	3	1. 20	7. 4	12. 43	5. 3	6. 54
7	Sa.	4	2. 3	18. 26	24. 12	8. 42	10. 24
8	*Su.*	5	2. 48	30. 4	36. 2	12. 0	13. 29
9	M.	6	3. 34	42. 7	48. 18	14. 50	16. 2
10	Tu.	7	4. 22	54. 37	61. 3	17. 3	17. 54
11	W.	8	5. 12	67. 36	74. 17	18. 31	18. 56
12	Th.	9	6. 5	81. 5	87. 59	19. 5	19. 0
13	F.	10	6. 59	94. 59	102. 3	18. 39	18. 2
14	Sa.	11	7. 55	109. 10	116. 20	17. 9	15. 59
15	*Su.*	12	8. 51	123. 32	130. 44	14. 34	12. 54
16	M.	13	9. 47	137. 57	145. 10	11. 1	8. 57
17	Tu.	14	10. 43	152. 23	159. 36	6. 42	4. 20 N
18	W.	15	11. 39	166. 49	174. 3	1. 53 N	0. 37 S
19	Th.	16	12. 36	181. 17	188. 33	3. 7 S	5. 33
20	F.	17	13. 33	195. 51	203. 9	7. 52	10. 4
21	Sa.	18	14. 30	210. 29	217. 49	12. 4	13. 51
22	*Su.*	19	15. 27	225. 9	232. 28	15. 24	16. 41
23	M.	20	16. 24	239. 45	246. 59	17. 41	18. 25
24	Tu.	21	17. 18	254. 9	261. 12	18. 52	19. 2
25	W.	22	18. 11	268. 8	274. 58	18. 56	18. 35
26	Th.	23	19. 1	281. 39	288. 12	18. 1	17. 13
27	F.	24	19. 49	294. 36	300. 52	16. 14	15. 4
28	Sa.	25	20. 35	307. 0	313. 1	13. 45	12. 17
29	*Su.*	26	21. 19	318. 56	324. 44	10. 43	9. 2
30	M.	27	22. 2	330. 28	336. 8	7. 16	5. 27
31	Tu.	28	22. 44	341. 46	347. 21	3. 35	1. 40

Days of the Month.	Days of the Week.	Semidr. ☽ at Noon.	Semidr. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logr. at Noon.	Proport. Logr. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	*Su.*	14. 54	14. 52	54. 42	54. 32	5173	5186
2	M.	14. 49	14. 47	54. 24	54. 17	5197	5206
3	Tu.	14. 46	14. 45	54. 11	54. 7	5214	5219
4	W.	14. 44	14. 43	54. 4	54. 2	5223	5226
5	Th.	14. 43	14. 44	54. 2	54. 3	5226	5225
6	F.	14. 44	14. 45	54. 5	54. 9	5222	5217
7	Sa.	14. 47	14. 49	54. 14	54. 21	5210	5201
8	*Su.*	14. 51	14. 54	54. 30	54. 41	5189	5174
9	M.	14. 58	15. 2	54. 54	55. 9	5157	5137
10	Tu.	15. 6	15. 11	55. 26	55. 44	5115	5091
11	W.	15. 17	15. 23	56. 5	56. 28	5064	5035
12	Th.	15. 30	15. 37	56. 52	57. 18	5004	4971
13	F.	15. 44	15. 52	57. 45	58. 13	4937	4902
14	Sa.	16. 0	16. 7	58. 42	59. 10	4866	4832
15	*Su.*	16. 15	16. 22	59. 37	60. 3	4799	4768
16	M.	16. 28	16. 34	60. 27	60. 48	4739	4714
17	Tu.	16. 39	16. 43	61. 6	61. 20	4692	4676
18	W.	16. 45	16. 46	61. 29	61. 33	4665	4660
19	Th.	16. 46	16. 45	61. 32	61. 26	4661	4669
20	F.	16. 42	16. 37	61. 16	61. 0	4680	4699
21	Sa.	16. 32	16. 26	60. 41	60. 19	4722	4748
22	*Su.*	16. 19	16. 12	59. 54	59. 26	4778	4812
23	M.	16. 4	15. 56	58. 58	58. 29	4846	4882
24	Tu.	15. 48	15. 41	58. 0	57. 32	4918	4953
25	W.	15. 33	15. 26	57. 5	56. 39	4987	5021
26	Th.	15. 20	15. 13	56. 16	55. 52	5050	5081
27	F.	15. 8	15. 3	55. 32	55. 14	5107	5130
28	Sa.	14. 59	14. 55	54. 58	54. 44	5152	5170
29	*Su.*	14. 52	14. 49	54. 33	54. 23	5185	5198
30	M.	14. 47	14. 46	54. 16	54. 10	5207	5215
31	Tu.	14. 45	14. 44	54. 6	54. 4	5221	5223

Distances of ☽'s Center from ☉, and from Stars east of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
6		58. 31. 2	57. 2. 24	55. 33. 44	54. 5. 0
7	Aldebaran.	46. 40. 39	45. 11. 40	43. 42. 57	42. 13. 30
8		34. 46. 37	33. 17. 0	31. 47. 18	30. 17. 30
9		22. 46. 44	21. 16. 17	19. 45. 46	18. 15. 12
10	Pollux.	54. 23. 35	52. 54. 2	51. 24. 24	49. 54. 41
11		42. 24. 46	40. 54. 41	39. 24. 38	37. 54. 37
12		65. 12. 52	63. 36. 3	61. 58. 52	60. 21. 20
13	Regulus.	52. 8. 9	50. 28. 25	48. 48. 18	47. 7. 49
14		38. 39. 42	36. 56. 59	35. 13. 57	33. 30. 36
15		24. 49. 38			
15		78. 4. 30	76. 17. 19	74. 29. 40	72. 41. 33
16		63. 34. 47	61. 44. 20	59. 53. 31	58. 2. 20
17	Spica ♍	48. 41. 27	46. 48. 23	44. 55. 6	43. 1. 35
18		33. 31. 7	31. 36. 37	29. 42. 3	27. 47. 26
19		18. 14. 14			
19		64. 4. 8	62. 10. 42	60. 17. 24	58. 24. 14
20	Antares.	49. 1. 42	47. 10. 3	45. 18. 46	43. 27. 54
21		34. 20. 32	32. 32. 41	30. 45. 37	28. 59. 23
22		20. 23. 36			
22		73. 2. 36	71. 25. 6	69. 48. 11	68. 11. 54
23	α Aquilæ.	60. 20. 45	58. 48. 45	57. 17. 38	55. 47. 23
24		48. 30. 25			
24	β Capricorni.	45. 46. 1	44. 5. 12	42. 24. 49	40. 44. 52
25		32. 31. 17	30. 53. 45	29. 16. 36	27. 39. 49
23			120. 28. 54	118. 52. 30	117. 16. 31
24		109. 23. 21	107. 50. 0	106. 17. 4	104. 44. 33
25		97. 8. 12	95. 38. 6	94. 8. 22	92. 38. 59
26	The Sun.	85. 17. 16	83. 49. 57	82. 22. 55	80. 56. 12
27		73. 46. 44	72. 21. 40	70. 56. 49	69. 32. 13
28		62. 32. 19	61. 8. 56	59. 45. 43	58. 22. 40
29		51. 29. 32	50. 7. 19	48. 45. 12	47. 23. 11
30		40. 34. 28	39. 12. 58		

Diſtances of ☽'s Center from ☉, and from Stars eaſt of her.

Days.	Stars Names.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
5	Aldebaran.	64. 25. 36	62. 57. 0	61. 28. 23	59. 59. 43
6		52. 36. 14	51. 7. 25	49. 38. 32	48. 9. 37
7		40. 44. 19	39. 15. 1	37. 45. 38	36. 16. 11
8		28. 47. 35	27. 17. 31	25. 47. 22	24. 17. 6
9		16. 44. 33			
9	Pollux.	60. 20. 47	58. 51. 38	57. 22. 23	55. 53. 2
10		48. 24. 52	46. 54. 54	45. 24. 54	43. 54. 51
11		36. 24. 40			
11	Regulus.	71. 37. 1	70. 1. 27	68. 25. 34	66. 49. 24
12		58. 43. 27	57. 5. 11	55. 26. 32	53. 47. 32
13		45. 26. 58	43. 45. 41	42. 4. 3	40. 22. 3
14		31. 46. 58	30. 3. 1	28. 18. 50	26. 34. 21
15	Spica ♍	70. 53. 1	69. 4. 3	67. 14. 41	65. 24. 56
16		56. 10. 47	54. 18. 54	52. 26. 43	50. 34. 14
17		41. 7. 50	39. 13. 53	37. 19. 46	35. 25. 31
18		25. 52. 46	23. 58. 6	22. 3. 26	20. 8. 49
19	Antares.	56. 31. 15	54. 38. 27	52. 45. 56	50. 53. 44
20		41. 37. 26	39. 47. 23	37. 57. 53	36. 8. 54
21		27. 14. 0	25. 29. 40	23. 46. 26	22. 4. 22
22	α Aquilæ.	66. 36. 15	65. 1. 17	63. 27. 2	61. 53. 30
23		54. 18. 0	52. 49. 34	51. 22. 9	49. 55. 46
24	β Capricorni.	39. 5. 20	37. 26. 13	35. 47. 31	34. 9. 12
25		26. 3. 24			
23	The Sun.	115. 41. 0	114. 5. 56	112. 31. 18	110. 57. 6
24		103. 12. 28	101. 40. 48	100. 9. 33	98. 38. 42
25		91. 9. 58	89. 41. 17	88. 12. 57	86. 44. 56
26		79. 29. 47	78. 3. 37	76. 37. 43	75. 12. 5
27		68. 7. 50	66. 43. 39	65. 19. 39	63. 55. 54
28		56. 59. 46	55. 37. 0	54. 14. 22	52. 51. 53
29		46. 1. 18	44. 39. 29	43. 17. 44	41. 56. 4

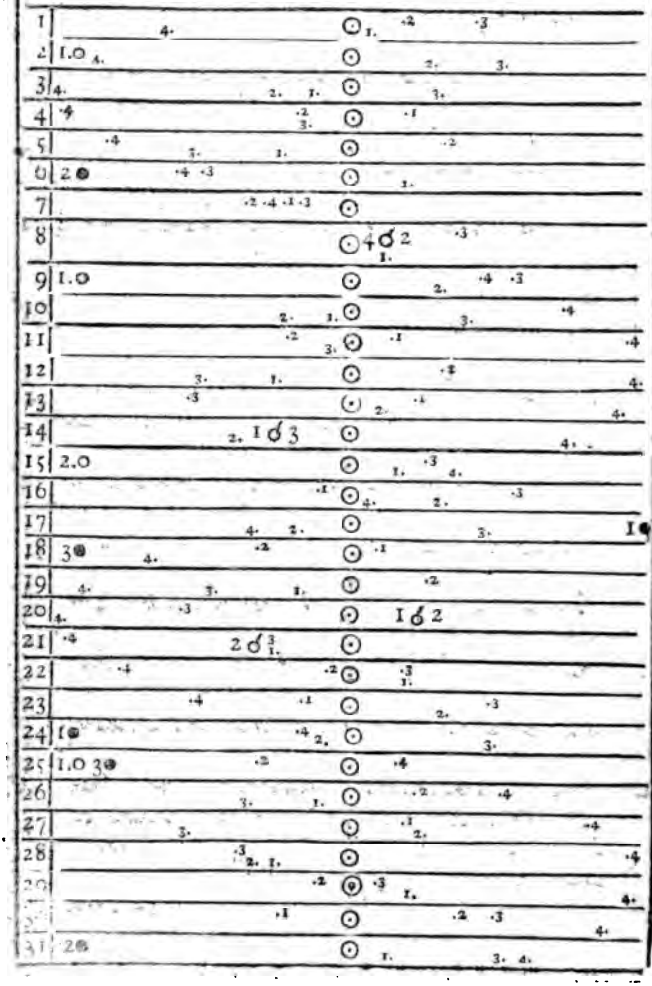
Diſtances of ☽'s Center from ☉, and from Stars weſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	Antares.	63. 2. 34	64. 32. 5	66. 1. 31	67. 30. 51
2		74. 56. 19	76. 25. 11	77. 53. 58	79. 22. 42
8		43. 38. 45	45. 0. 48	46. 22. 58	47. 45. 17
9		54. 39. 16	56. 2. 38	57. 26. 10	58. 49. 53
10		65. 51. 1	67. 15. 56	68. 41. 6	70. 6. 30
11	The Sun.	77. 17. 42	78. 44. 45	80. 12. 6	81. 39. 46
12		89. 3. 17	90. 32. 59	92. 3. 4	93. 33. 30
13		101. 11. 37	102. 44. 25	104. 17. 38	105. 51. 16
14		113. 45. 52	115. 22. 4	116. 58. 40	118. 35. 44
12		14. 57. 55	16. 34. 8	18. 10. 53	19. 48. 7
13		28. 1. 35	29. 41. 35	31. 22. 3	33. 2. 58
14	Aldebaran.	41. 34. 21	43. 17. 56	45. 1. 59	46. 46. 27
15		55. 35. 43	57. 22. 52	59. 10. 26	60. 58. 26
16		70. 4. 46	71. 55. 11	73. 45. 57	75. 37. 4
17		84. 57. 42			
17	Pollux.	43. 14. 0	45. 2. 6	46. 50. 45	48. 39. 52
18		57. 51. 37	59. 42. 53	61. 34. 22	63. 26. 0
19		35. 51. 10	37. 44. 39	39. 38. 8	41. 31. 37
20	Regulus.	50. 57. 48	52. 50. 34	54. 43. 9	56. 35. 29
21		65. 53. 7	67. 43. 43	69. 33. 57	71. 23. 50
22		80. 27. 20			
22		26. 42. 46	28. 30. 34	30. 17. 57	32. 4. 53
23		40. 53. 2	42. 37. 21	44. 21. 13	46. 4. 38
24	Spica ♍	54. 35. 5	56. 15. 52	57. 56. 14	59. 36. 10
25		67. 49. 41	69. 27. 12	71. 4. 22	72. 41. 9
26		80. 39. 58			
26		35. 46. 52	37. 19. 11	38. 51. 21	40. 23. 24
27	Antares.	48. 1. 12	49. 32. 14	51. 3. 3	52. 33. 44
28		60. 4. 42	61. 34. 24	63. 3. 59	64. 33. 27
29		71. 58. 56			
29		17. 6. 7	18. 35. 41	20. 5. 9	21. 34. 32
30	♑ Capricorni.	29. 0. 14	30. 29. 8	31. 58. 0	33. 26. 49
31		40. 50. 15	42. 18. 52	43. 47. 29	45. 16. 4
A. 1		52. 39. 3			

Diſtances of Moon's Center from ☉, and from Stars weſt of her.

Days.	Stars Names.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	Antares.	69. 0. 6	78. 29. 16	71. 58. 22	73. 27. 22
2		80. 51. 20			
7	The Sun.		39. 33. 16	40. 55. 0	42. 16. 49
8		49. 7. 45	50. 30. 22	51. 53. 10	53. 16. 8
9		60. 13. 46	61. 37. 48	63. 1. 58	64. 26. 23
10		71. 32. 10	72. 58. 8	74. 24. 23	75. 50. 54
11		83. 7. 46	84. 36. 8	86. 4. 50	87. 33. 53
12		95. 4. 19	96. 35. 33	98. 7. 11	99. 39. 12
13		107. 25. 18	108. 59. 48	110. 34. 44	112. 10. 5
14		120. 13. 14			
12	Aldebaran.	21. 25. 52	23. 4. 6	24. 42. 48	26. 21. 58
13		34. 44. 19	36. 26. 9	38. 8. 27	39. 51. 10
14		48. 31. 23	50. 16. 48	52. 2. 40	53. 48. 58
15		62. 46. 51	64. 35. 44	66. 25. 1	68. 14. 42
16		77. 28. 31	79. 20. 20	81. 12. 27	83. 4. 55
17	Pollux.	50. 29. 29	52. 19. 31	54. 9. 53	56. 0. 36
18		65. 17. 48			
18	Regulus.	28. 18. 21	30. 11. 19	32. 4. 29	33. 57. 46
19		43. 25. 6	45. 18. 28	47. 11. 42	49. 4. 49
20		58. 27. 36	60. 19. 26	62. 10. 57	64. 2. 11
21		73. 13. 21	75. 2. 28	76. 51. 10	78. 39. 28
22	Spica ♍	33. 51. 23	35. 37. 27	37. 23. 5	39. 8. 17
23		47. 47. 37	49. 30. 8	51. 12. 13	52. 53. 52
24		61. 15. 41	62. 54. 47	64. 33. 29	66. 11. 47
25		74. 17. 35	75. 53. 40	77. 29. 26	79. 4. 52
26	Antares.	41. 55. 17	43. 27. 1	44. 58. 35	46. 29. 58
27		54. 4. 14	55. 34. 35	57. 4. 47	58. 34. 48
28		66. 2. 46	67. 31. 58	69. 1. 3	70. 30. 3
29	♑ Capricorni.	23. 3. 50	24. 33. 3	26. 2. 11	27. 31. 15
30		34. 55. 34	36. 24. 17	37. 52. 58	39. 21. 37
31		46. 44. 39	48. 13. 15	49. 41. 51	51. 10. 27

Configurations of the SATELLITES of JUPITER at half an Hour paſt 5 o' th' Clock in the Morning.



Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	W.	
2	Th.	
3	F.	Richard, Bp. of Chich.
4	Sa.	S. Ambroſe.
5	*Su.*	*5th Sunday in Lent.*
6	M.	
7	Tu.	
8	W.	
9	Th.	
10	F.	Cambridge Term ends.
11	Sa.	Oxford Term ends.
12	*Su.*	*6th Sunday in Lent, Palm*
13	M.	[*Sunday.*
14	Tu.	
15	W.	
16	Th.	
17	F.	*Good Friday.*
18	Sa.	
19	*Su.*	*Eaſter-Day*, Alphege.
20	M.	*Eaſter-Monday.*
21	Tu.	*Eaſter-Tueſday.*
22	W.	
23	Th.	*St. George.*
24	F.	
25	Sa.	*St. Mark.*
26	*Su.*	*1ſt Sunday after Eaſter,*
27	M.	[*Low Sunday.*
28	Tu.	
29	W.	Oxf. and Camb. Terms
30	Th.	[begin.

Phaſes of the Moon.

D. H.M.

New Moon — 2. 17. 23
Firſt Quarter — 10. 13. 17
Full Moon — 17. 4. 3
Laſt Quarter — 24. 5. 13

Other Phenomena.

D.

4. ☌ ☿ ♒ diff. Lat. 10′.
6. ☾ 1 ad ☍ ♉ 20h. 10′.
☾ 2 ad ☍ ♉ 20h. 40′.
☾ ☇ ♉ 23h. 15′.
11. ☾ 1 ad ☌ ♋ 21h. 0′.
☾ 2 ad ☌ ♋ 21h. 55′.
12. ☾ ☊ ♋ 2h. 14′.
13. ☾ ☍ ♌ 0h. 17′.
16. ☾ ☌ ♍ 16h. 8′.
17. ☽ eclipſed inviſible.
☾ ☊ ♍ 13h. 7′.
18. ☾ ☌ ♎ 2h. 16′.
☾ 4 ad ♂ ♎ 18h. 32′.
☿ ☍ ♈ diff. Lat. 16′.
19. ☉ enters ♉ at 1h. 54′.
23. ☾ ☋ ♈ 21h. 16′.
26. ♄ Stationary.
29. ☾ ☍ ♓ 17h. 50′.
30. ☾ ☇ ♓ 0h. 40′.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. North.	Equat. of Time. Add.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	W.	0. 12. 18. 6	0. 45. 14, 8	4. 52. 1	3. 44, 1	18, 1
2	Th.	0. 13. 17. 10	0. 48. 53, 2	5. 15. 3	3. 26, 0	18, 0
3	F.	0. 14. 16. 10	0. 52. 31, 7	5. 38. 0	3. 8, 0	17, 8
4	Sa.	0. 15. 15. 10	0. 56. 10, 4	6. 0. 49	2. 50, 2	17, 7
5	*Su.*	0. 16. 14. 7	0. 59. 49, 3	6. 23. 32	2. 32, 5	17, 4
6	M.	0. 17. 13. 1	1. 3. 28, 3	6. 46. 7	2. 15, 1	17, 3
7	Tu.	0. 18. 11. 54	1. 7. 7, 5	7. 8. 39	1. 57, 8	17, 0
8	W.	0. 19. 10. 43	1. 10. 47, 0	7. 31. 1	1. 40, 8	16, 9
9	Th.	0. 20. 9. 32	1. 14. 26, 7	7. 53. 16	1. 23, 9	16, 7
10	F.	0. 21. 8. 18	1. 18. 6, 5	8. 15. 23	1. 7, 2	16, 3
11	Sa.	0. 22. 7. 0	1. 21. 46, 7	8. 37. 21	0. 50, 9	16, 0
12	*Su.*	0. 23. 5. 40	1. 25. 27, 1	8. 59. 11	0. 34, 9	15, 7
13	M.	0. 24. 4. 19	1. 29. 7, 9	9. 20. 52	0. 19, 2	15, 4
14	Tu.	0. 25. 2. 56	1. 32. 49, 1	9. 42. 23	0. 3, 8	15, 1
15	W.	0. 26. 1. 30	1. 36. 30, 5	10. 3. 45	Sub. 11, 3	14, 8
16	Th.	0. 27. 0. 1	1. 40. 12, 2	10. 24. 57	0. 26, 1	14, 4
17	F.	0. 27. 58. 31	1. 43. 54, 3	10. 45. 58	0. 40, 5	13, 9
18	Sa.	0. 28. 57. 0	1. 47. 36, 9	11. 6. 49	0. 54, 4	13, 4
19	*Su.*	0. 29. 55. 26	1. 51. 19, 9	11. 27. 29	1. 7, 8	13, 3
20	M.	1. 0. 53. 50	1. 55. 3, 3	11. 47. 57	1. 21, 1	12, 6
21	Tu.	1. 1. 52. 13	1. 58. 47, 1	12. 8. 15	1. 33, 7	12, 3
22	W.	1. 2. 50. 35	2. 2. 31, 4	12. 28. 20	1. 46, 0	11, 7
23	Th.	1. 3. 48. 54	2. 6. 16, 2	12. 48. 14	1. 57, 7	11, 2
24	F.	1. 4. 47. 13	2. 10. 1, 5	13. 7. 55	2. 8, 9	10, 8
25	Sa.	1. 5. 45. 30	2. 13. 47, 3	13. 27. 23	2. 19, 7	10, 2
26	*Su.*	1. 6. 43. 45	2. 17. 33, 6	13. 46. 38	2. 29, 9	9, 8
27	M.	1. 7. 41. 59	2. 21. 20, 4	14. 5. 39	2. 39, 7	9, 1
28	Tu.	1. 8. 40. 11	2. 25. 7, 8	14. 24. 27	2. 48, 8	8, 5
29	W.	1. 9. 38. 24	2. 28. 55, 7	14. 43. 2	2. 57, 3	8, 1
30	Th.	1. 10. 36. 33	2. 32. 44, 2	15. 1. 21	3. 5, 4	7, 6

Days.	Semidiameter of the Sun.	Time of D° passing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Distance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	16. 2,0	1. 4,4	2. 27,6	0. 000311	6. 29. 57
7	16. 0,2	1. 4,5	2. 27,0	0. 001050	6. 29. 38
13	15. 58,9	1. 4,8	2. 26,5	0. 001763	6. 29. 19
19	15. 57,4	1. 5,1	2. 26,0	0. 002470	6. 29. 0
25	15. 55,7	1. 5,5	2. 25,5	0. 003172	6. 28. 41

Eclipses of the SATELLITES of JUPITER.

I. Satellite. Immersions.		II. Satellite. Immersions.		III. Satellite.		
D	H. M. S.	D.	H. M. S.	D.	H. M. S.	
1	14. 26. 6	3	3. 25. 17	1	1. 34. 43	E
3	8. 55. 5	6	16*44. 41	8	2. 1. 0	I
5	3. 23. 59	10	6. 4. 9	8	5. 36. 37	E
6	21. 52. 57	13	10. 23. 30	15	6. 2. 41	I
8	16*21. 50	17	8. 42. 50	15	9. 38. 20	E
10	10. 50. 44	20	22. 2. 6	22	10. 4. 0	I
12	5. 19. 38	24	11. 21. 9	22	13. 39. 40	E
13	23. 48. 27	28	0. 40. 13	29	14. 5. 0	I
15	18. 17. 17			29	17. 40. 36	E
17	12. 46. 9					
19	7. 14. 54			IV. Satellite.		
21	1. 43. 42					
22	20. 12. 27			1	5. 33. 48	I
24	14. 41. 9			1	10. 19. 42	E
26	9. 9. 48			17	23. 48. 22	I
28	3. 38. 28			18	4. 34. 28	E
29	22. 7. 3					

Days	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Passage over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
	MERCURY. Gr. Elong. 28d.					
1	0. 13. 2	3. 48 S	0. 12. 29	0. 57 S	4. 4 N	0. 2
7	1. 17. 13	0. 11 N	0. 24. 58	0. 3 N	9. 43	0. 25
13	2. 24. 46	4. 24	1. 7. 9	1. 9	15. 0	0. 48
19	4. 1. 7	6. 46	1. 17. 51	2. 5	19. 10	1. 8
25	5. 2. 31	6. 42	1. 26. 11	2. 37	21. 52	1. 19
	VENUS.					
1	3. 16. 49	1. 48 N	1. 19. 29	1. 6 N	18. 40 N	2. 22
7	3. 26. 34	2. 16	1. 26. 32	1. 25	20. 47	2. 28
13	4. 6. 19	2. 40	2. 3. 32	1. 44	22. 35	2. 35
19	4. 16. 4	2. 58	2. 10. 27	2. 1	24. 1	2. 42
25	4. 25. 49	3. 12	2. 17. 17	2. 16	25. 7	2. 50
	MARS.					
1	10. 18. 51	1. 51 S	11. 10. 56	1. 12 S	8. 35 S	22. 5
7	10. 22. 39	1. 51	11. 15. 36	1. 12	6. 47	22. 1
13	10. 26. 26	1. 50	11. 20. 17	1. 12	4. 58	21. 56
19	11. 0. 15	1. 48	11. 24. 55	1. 12	3. 7	21. 51
25	11. 4. 3	1. 46	11. 29. 34	1. 11	1. 16	21. 46
	JUPITER.					
1	10. 15. 14	0. 47 S	10. 23. 46	0. 42 S	14. 17 S	20. 58
7	10. 15. 46	0. 48	10. 24. 55	0. 43	13. 55	20. 40
13	10. 16. 18	0. 48	10. 26. 0	0. 44	13. 34	20. 22
19	10. 16. 49	0. 49	10. 27. 2	0. 46	13. 14	20. 5
25	10. 17. 21	0. 50	10. 28. 0	0. 47	12. 54	19. 45
	SATURN.					
1	4. 27. 58	1. 29 N	4. 23. 16	1. 37 N	15. 18 N	8. 58
7	4. 28. 11	1. 30	4. 23. 4	1. 36	15. 22	8. 34
13	4. 28. 23	1. 30	4. 22. 55	1. 36	15. 24	8. 12
19	4. 28. 36	1. 31	4. 22. 51	1. 35	15. 25	7. 50
25	4. 28. 49	1. 31	4. 22. 50	1. 35	15. 25	7. 28

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
1	W.	11. 23. 37. 23	11. 29. 31. 26	3. 2. 21 N	2. 34. 50 N
2	Th.	0. 5. 25. 44	0. 11. 20. 29	2. 5. 35	1. 34. 59
3	F.	0. 17. 15. 59	0. 23. 12. 34	1. 3. 14 N	0. 30. 41 N
4	Sa.	0. 29. 10. 21	1. 5. 9. 43	0. 2. 19 S	0. 35. 27 S
5	*Su.*	1. 11. 10. 51	1. 17. 14. 8	1. 8. 22	1. 40. 42
6	M.	1. 23. 19. 48	1. 29. 28. 15	2. 12. 8	2. 42. 18
7	Tu.	2. 5. 39. 49	2. 11. 54. 52	3. 10. 48	3. 37. 17
8	W.	2. 18. 13. 41	2. 24. 36. 40	4. 1. 25	4. 22. 50
9	Th.	3. 1. 4. 11	3. 7. 36. 38	4. 41. 11	4. 56. 9
10	F.	3. 14. 14. 15	3. 20. 57. 14	5. 7. 23	5. 14. 36
11	Sa.	3. 27. 45. 51	4. 4. 40. 16	5. 17. 32	5. 15. 57
12	*Su.*	4. 11. 40. 30	4. 18. 46. 26	5. 9. 40	4. 58. 39
13	M.	4. 25. 57. 51	5. 3. 14. 25	4. 42. 49	4. 22. 16
14	Tu.	5. 10. 35. 40	5. 18. 1. 1	3. 57. 12	3. 27. 55
15	W.	5. 25. 29. 30	6. 3. 0. 23	2. 54. 52	2. 18. 36
16	Th.	6. 10. 32. 29	6. 18. 4. 43	1. 39. 52	0. 59. 23 S
17	F.	6. 25. 36. 1	7. 3. 5. 15	0. 17. 52 S	0. 23. 43 N
18	Sa.	7. 10. 31. 12	7. 17. 53. 9	1. 4. 37 N	1. 44. 4
19	*Su.*	7. 25. 10. 12	8. 2. 21. 35	2. 21. 21	2. 55. 55
20	M.	8. 9. 26. 48	8. 16. 25. 32	3. 27. 17	3. 55. 1
21	Tu.	8. 23. 17. 43	9. 0. 3. 15	4. 18. 55	4. 38. 48
22	W.	9. 6. 42. 6	9. 13. 14. 40	4. 54. 35	5. 6. 15
23	Th.	9. 19. 41. 13	9. 26. 2. 10	5. 13. 48	5. 17. 27
24	F.	10. 2. 17. 54	10. 8. 29. 0	5. 17. 14	5. 13. 19
25	Sa.	10. 14. 36. 5	10. 20. 39. 31	5. 5. 52	4. 55. 4
26	*Su.*	10. 26. 40. 2	11. 2. 38. 9	4. 41. 7	4. 24. 11
27	M.	11. 8. 34. 19	11. 14. 29. 14	4. 4. 33	3. 42. 18
28	Tu.	11. 20. 23. 25	11. 26. 17. 15	3. 17. 46	2. 51. 11
29	W.	0. 2. 11. 10	0. 8. 5. 47	2. 22. 42	1. 52. 43
30	Th.	0. 14. 1. 15	0. 19. 58. 7	1. 21. 22	0. 49. 7

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſſage over Merid.	☽'s Right Aſcen. at Noon.	☽'s Right Aſc. at Midn.	☽'s Declinat. at Noon.	☽'s Declin. at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	W.	29	23. 27	352. 57	358. 32	0. 15 N	2. 11 N
2	Th.	1	♂	4 9	9. 48	4. 5	5. 57
3	F.	2	0. 9	15. 30	21. 17	7. 46	9. 30
4	Sa.	3	0. 54	27. 8	33. 5	11. 9	12. 42
5	*Su.*	4	1. 40	39. 7	45. 15	14. 7	15. 23
6	M.	5	2. 27	51. 30	57. 52	16. 30	17. 25
7	Tu.	6	3. 16	64. 20	70. 54	18. 9	18. 39
8	W.	7	4. 8	77. 34	84. 19	18. 56	18. 58
9	Th.	8	5. 1	91. 8	98. 0	18. 45	18. 18
10	F.	9	5. 54	104. 54	111. 49	17. 37	16. 39
11	Sa.	10	6. 48	118. 46	125. 43	15. 27	14. 0
12	*Su.*	11	7. 42	132. 41	139. 38	12. 20	10. 29
13	M.	12	8. 36	146. 36	153. 35	8. 27	6. 15
14	Tu.	13	9. 30	160. 36	167. 38	3. 57 N	1. 34 N
15	W.	14	10. 25	174. 42	181. 50	0. 53 S	3. 19 S
16	Th.	15	11. 22	189. 2	196. 17	5. 43	8. 1
17	F.	16	12. 19	203. 37	211. 1	10. 11	12. 11
18	Sa.	17	13. 17	218. 27	225. 56	13. 58	15. 30
19	*Su.*	18	14. 15	233. 25	240. 53	16. 47	17. 46
20	M.	19	15. 13	248. 20	255. 41	18. 28	18. 53
21	Tu.	20	16. 8	262. 56	270. 3	19. 0	18. 49
22	W.	21	17. 1	277. 2	283. 52	18. 23	17. 43
23	Th.	22	17. 50	290. 31	297. 1	16. 51	15. 46
24	F.	23	18. 38	303. 20	309. 31	14. 31	13. 7
25	Sa.	24	19. 23	315. 33	321. 28	11. 35	9. 57
26	*Su.*	25	20. 7	327. 18	333. 2	8. 14	6. 26
27	M.	26	20. 49	338. 41	344. 17	4. 35	2. 42 S
28	Tu.	27	21. 31	349. 53	355. 28	0. 47 S	1. 8 N
29	W.	28	22. 14	1. 3	6. 41	3. 3 N	4. 56
30	Th.	29	22. 56	12. 23	18. 7	6. 47	8. 34

Days of the Month.	Days of the Week.	Semidr. ☽ at Noon.	Semidr. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	W.	14. 44	14. 44	54. 3	54. 4	5225	5223
2	Th.	14. 44	14. 45	54. 6	54. 9	5221	5217
3	F.	14. 46	14. 48	54. 13	54. 19	5211	5203
4	Sa.	14. 50	14. 52	54. 26	54. 35	5194	5182
5	*Su.*	14. 55	14. 58	54. 44	54. 55	5170	5155
6	M.	15. 1	15. 5	55. 8	55. 23	5138	5119
7	Tu.	15. 9	15. 13	55. 37	55. 53	5100	5080
8	W.	15. 18	15. 23	56. 11	56. 30	5056	5032
9	Th.	15. 29	15. 35	56. 50	57. 12	5006	4979
10	F.	15. 41	15. 48	57. 35	57. 59	4950	4919
11	Sa.	15. 55	16. 1	58. 23	58. 47	4890	4860
12	*Su.*	16. 8	16. 14	59. 12	59. 35	4830	4801
13	M.	16. 20	16. 26	59. 57	60. 18	4775	4750
14	Tu.	16. 31	16. 35	60. 36	60. 51	4728	4710
15	W.	16. 38	16. 40	61. 3	61. 10	4696	4687
16	Th.	16. 41	16. 41	61. 14	61. 13	4683	4684
17	F.	16. 39	16. 36	61. 7	60. 56	4691	4704
18	Sa.	16. 32	16. 26	60. 42	60. 23	4721	4743
19	*Su.*	16. 21	16. 15	60. 0	59. 37	4771	4799
20	M.	16. 7	16. 0	59. 10	58. 42	4832	4866
21	Tu.	15. 52	15. 44	58. 14	57. 45	4901	4937
22	W.	15. 37	15. 29	57. 17	56. 50	4972	5006
23	Th.	15. 22	15. 16	56. 24	56. 1	5042	5069
24	F.	15. 10	15. 4	55. 39	55. 19	5098	5124
25	Sa.	15. 0	14. 56	55. 3	54. 48	5145	5165
26	*Su.*	14. 53	14. 50	54. 36	54. 26	5181	5194
27	M.	14. 48	14. 47	54. 19	54. 14	5203	5210
28	Tu.	14. 46	14. 46	54. 11	54. 10	5214	5215
29	W.	14. 46	14. 47	54. 11	54. 14	5214	5210
30	Th.	14. 48	14. 50	54. 20	54. 25	5202	5195

Diſtances of ☽'s Center from ☉, and from Stars eaſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
5		69. 11. 43	67. 43. 3	66. 14. 16	64. 45. 25
6	Pollux.	57. 20. 12	55. 50. 57	54. 21. 40	52. 52. 20
7		45. 25. 15			
7		81. 2. 52	79. 29. 43	77. 56. 23	76. 22. 51
8		68. 32. 3	66. 57. 14	65. 22. 11	63. 46. 54
9	Regulus.	55. 46. 44	54. 9. 56	52. 32. 52	50. 55. 32
10		42. 44. 44	41. 5. 46	39. 26. 33	37. 47. 5
11		29. 26. 7			
11		82. 45. 18	81. 2. 43	79. 19. 46	77. 36. 26
12		68. 54. 19	67. 8. 47	65. 22. 54	63. 36. 39
13	Spica ♍	54. 40. 2	52. 51. 39	51. 2. 57	49. 13. 55
14		40. 4. 1	38. 13. 7	36. 21. 57	34. 30. 33
15		25. 10. 23			
15		70. 56. 35	69. 5. 0	67. 13. 17	65. 21. 28
16		56. 1. 42	54. 9. 45	52. 17. 53	50. 26. 8
17	Antares.	41. 9. 44	39. 19. 9	37. 28. 59	35. 39. 15
18		26. 38. 50			
18		79. 3. 29	77. 22. 14	75. 41. 22	74. 0. 57
19	α Aquilæ.	65. 46. 31	64. 9. 24	62. 33. 0	60. 57. 21
20		53. 11. 17			
20		51. 17. 57	49. 32. 37	47. 47. 43	46. 3. 15
21	β Capri-	37. 27. 28	35. 45. 38	34. 4. 15	32. 23. 18
22	corni.	24. 5. 9			
22		72. 55. 43	71. 21. 32	69. 47. 51	68. 14. 37
23	γ Pegaſi.	60. 35. 42	59. 5. 21	57. 35. 30	56. 6. 10
24		48. 47. 18			
22		116. 2. 17	114. 31. 8	113. 0. 23	111. 30. 2
23		104. 4. 5	102. 35. 59	101. 8. 14	99. 40. 50
24		92. 28. 42	91. 3. 10	89. 37. 54	88. 12. 54
25	The Sun.	81. 11. 32	79. 47. 57	78. 24. 34	77. 1. 22
26		70. 7. 53	68. 45. 37	67. 23. 28	66. 1. 27
27		59. 12. 52	57. 51. 22	56. 29. 55	55. 8. 30
28		48. 21. 52	47. 0. 34	45. 39. 16	44. 17. 57

Distances of ☽'s Center from ☉, and from Stars east of her.

Days.	Stars Names.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
4	Pollux.	75. 5. 43	73. 37. 22	72. 8. 54	70. 40. 22
5		63. 16. 30	61. 47. 31	60. 18. 28	58. 49. 22
6		51. 22. 57	49. 53. 32	48. 24. 7	46. 54. 41
7	Regulus.	74. 49. 7	73. 15. 11	71. 41. 1	70. 6. 39
8		62. 11. 22	60. 35. 35	58. 59. 33	57. 23. 17
9		49. 17. 56	47. 40. 2	46. 1. 52	44. 23. 26
10		36. 7. 22	34. 27. 24	32. 47. 12	31. 6. 47
11	Spica ♍	75. 52. 45	74. 8. 42	72. 24. 16	70. 39. 29
12		61. 50. 3	60. 3. 4	58. 15. 44	56. 28. 4
13		47. 24. 33	45. 34. 53	43. 44. 54	41. 54. 37
14		32. 38. 54	30. 47. 2	28. 55. 0	27. 2. 46
15	Antares.	63. 29. 35	61. 37. 38	59. 45. 40	57. 53. 42
16		48. 34. 28	46. 42. 56	44. 51. 38	43. 0. 34
17		33. 49. 56	32. 1. 12	30. 13. 4	28. 25. 36
18	ε Aquilæ.	72. 20. 59	70. 41. 30	69. 2. 36	67. 24. 16
19		59. 22. 25	57. 48. 20	56. 15. 4	54. 42. 42
20	ϑ Capricorni.	44. 19. 13	42. 35. 37	40. 52. 28	39. 9. 45
21		30. 42. 47	29. 2. 43	27. 23. 5	25. 43. 54
22	α Pegasi.	66. 41. 53	65. 9. 37	63. 37. 49	62. 6. 31
23		54. 37. 20	53. 9. 1	51. 41. 14	50. 14. 0
21	The Sun.		120. 38. 12	119. 5. 48	117. 33. 50
22		110. 0. 5	108. 30. 31	107. 1. 20	105. 32. 32
23		98. 13. 46	96. 47. 2	95. 20. 37	93. 54. 31
24		86. 48. 9	85. 23. 39	83. 59. 23	82. 35. 21
25		75. 38. 22	74. 15. 31	72. 52. 50	71. 30. 17
26		64. 39. 32	63. 17. 45	61. 56. 2	60. 34. 25
27		53. 47. 8	52. 25. 47	51. 4. 28	49. 43. 10
28		42. 56. 38	41. 35. 18	40. 13. 55	38. 52. 32

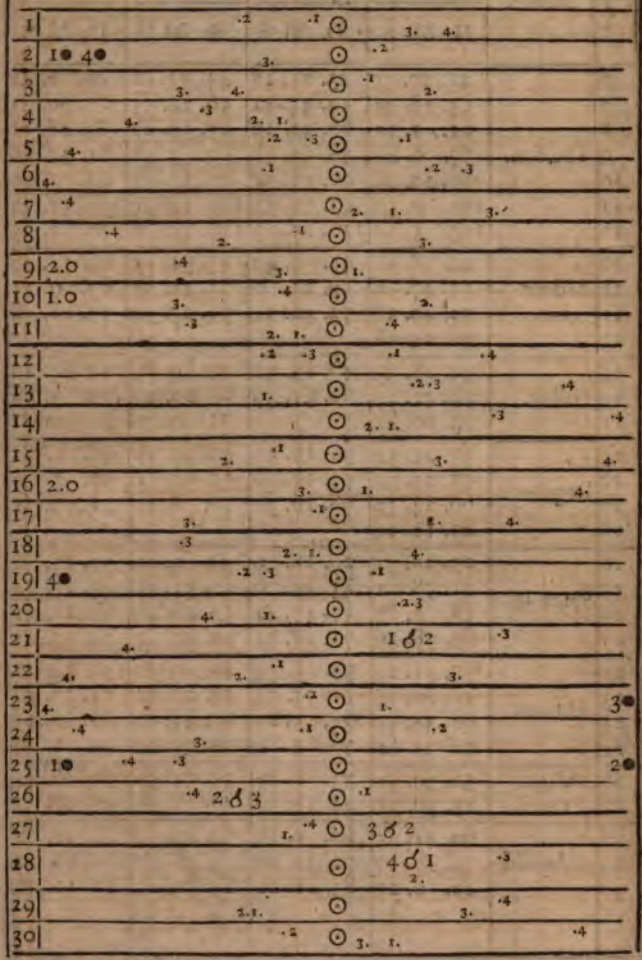
Distances of ☽'s Center from ☉, and from Stars west of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
6				38. 59. 50	40. 24. 52
7		47. 32. 45	48. 58. 55	50. 25. 18	51. 51. 53
8		59. 8. 2	60. 35. 58	62. 4. 9	63. 32. 36
9	The Sun.	70. 58. 37	72. 28. 41	73. 59. 4	75. 29. 44
10		83. 7. 38	84. 40. 10	86. 13. 2	87. 46. 14
11		95. 37. 25	97. 12. 43	98. 48. 24	100. 24. 26
12		108. 30. 9	110. 8. 24	111. 47. 1	113. 26. 0
11		50. 54. 57	52. 37. 27	54. 20. 19	56. 3. 32
12	Aldebaran.	64. 45. 17	66. 30. 45	68. 16. 34	70. 2. 45
13		78. 59. 7	80. 47. 27	82. 36. 6	84. 25. 7
14	Pollux.	51. 31. 55	53. 19. 3	55. 6. 36	56. 54. 34
15		65. 59. 35	67. 49. 27	69. 39. 32	71. 29. 52
16		43. 55. 0	45. 47. 35	47. 40. 12	49. 32. 52
17	Regulus.	58. 56. 2	60. 48. 28	62. 40. 45	64. 32. 53
18		73. 50. 37	75. 41. 28	77. 32. 2	79. 22. 19
19		34. 45. 58	36. 34. 34	38. 22. 46	40. 10. 36
20	Spica ♍	49. 3. 29	50. 48. 46	52. 33. 38	54. 18. 4
21		62. 53. 47	64. 35. 36	66. 16. 59	67. 57. 56
22		76. 16. 6			
22		31. 31. 26	33. 6. 43	34. 41. 48	36. 16. 41
23		44. 8. 8	45. 41. 43	47. 15. 3	48. 48. 9
24	Antares.	56. 29. 46	58. 1. 21	59. 32. 42	61. 3. 50
25		68. 36. 21	70. 6. 14	71. 35. 57	73. 5. 30
26		80. 30. 55			
26	β Capricorni.	25. 42. 36	27. 12. 6	28. 41. 28	30. 10. 44
27		37. 35. 32	39. 4. 17	40. 33. 0	42. 1. 39
28		49. 24. 35			
28		55. 30. 54	56. 48. 7	58. 5. 41	59. 23. 33
29	α Aquilæ.	65. 57. 29	67. 17. 5	68. 36. 55	69. 56. 59
30		76. 40. 24	78. 1. 40	79. 23. 5	80. 44. 42
M. 1		87. 34. 58			

Diſtances of ☽'s Center from ☉, and from Stars weſt of her.

Days.	Stars Names.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
6	The Sun.	41. 50. 5	43. 15. 28	44. 41. 2	46. 6. 48
7		53. 18. 41	54. 45. 41	56. 12. 55	57. 40. 21
8		65. 1. 15	66. 30. 10	67. 59. 22	69. 28. 51
9		77. 0. 42	78. 31. 58	80. 3. 32	81. 35. 26
10		89. 19. 46	90. 53. 39	92. 27. 53	94. 2. 29
11		102. 0. 50	103. 37. 37	105. 14. 45	106. 52. 16
12		115. 5. 21	116. 45. 3	118. 25. 8	120. 5. 33
10	Aldebaran.	44. 8. 38	45. 49. 40	47. 31. 3	49. 12. 49
11		57. 47. 8	59. 31. 6	61. 15. 28	63. 0. 11
12		71. 49. 18	73. 36. 14	75. 23. 30	77. 11. 8
13		86. 14. 28			
13	Pollux.	44. 28. 30	46. 13. 32	47. 59. 7	49. 45. 16
14		58. 42. 57	60. 31. 39	62. 20. 40	64. 9. 58
15		73. 20. 21			
15	Regulus.	36. 25. 54	38. 17. 57	40. 10. 10	42. 2. 31
16		51. 25. 34	53. 18. 16	55. 10. 55	57. 3. 29
17		66. 24. 52	68. 16. 38	70. 8. 11	71. 59. 31
18		81. 12. 19			
18	Spica ♍	27. 28. 1	29. 18. 0	31. 7. 40	32. 57. 0
19		41. 58. 1	43. 45. 0	45. 31. 35	47. 17. 44
20		56. 2. 6	57. 45. 41	59. 28. 49	61. 11. 31
21		69. 38. 26	71. 18. 31	72. 58. 9	74. 37. 21
22	Antares.	37. 51. 23	39. 25. 54	41. 0. 12	42. 34. 16
23		50. 20. 59	51. 53. 34	53. 25. 52	54. 57. 56
24		62. 34. 45	64. 5. 27	65. 35. 57	67. 6. 15
25		74. 34. 52	76. 4. 5	77. 33. 10	79. 2. 6
26	ρ Capricorni.	31. 39. 52	33. 8. 54	34. 37. 51	36. 6. 44
27		43. 30. 16	44. 58. 51	46. 27. 26	47. 56. 1
28	ζ Aquilæ.	60. 41. 45	62. 0. 16	63. 19. 4	64. 38. 8
29		71. 17. 17	72. 37. 46	73. 58. 27	75. 19. 20
30		82. 6. 27	83. 28. 22	84. 50. 26	86. 12. 38

Configurations of the SATELLITES of JUPITER at ½ an Hour past 4 o' th' Clock in the Morning.



Days of the Month.	Days of the Week.	Sundays, Holidays, &c.	Phases of the Moon.
1	F.	*S. Philip and S. James.*	D. H. M.
2	Sa.		New Moon —— 2. 9. 44
			First Quarter — 9. 21. 1
3	*Su.*	*2d. Su. aft. Eaſt.* Inv. of +	Full Moon —— 16. 12. 50
4	M.	From Eaſt. in 15 d. 1 ret.	Laſt Quarter —— 23. 21. 29
5	Tu.		New Moon —— 31. 23. 24
6	W.	John Evan. ante P. L.	
7	Th.	[Term begins.	Other Phenomena.
8	F.		D.
9	Sa.		4. ☾ 1 ad ☌ ♉ 2h. 3′.
			☾ 2 ad ☌ ♉ 2h. 33′.
10	*Su.*	*3d Sunday after Eaſter.*	☾ ☍ ♉ 5h. 6′.
11	M.	From Eaſter in 3 weeks,	9. ☾ 1 ad ☌ ♋ 3h. 17′.
12	Tu.	[2 ret.	☾ 2 ad ☌ ♋ 4h. 13′.
13	W.		☾ ☌ ♋ Im. 8h. 56′. * 15′. N. of ☽'s cent.
14	Th.		
15	F.		Em. 9h. 12′½. * 15′¼. N.
16	Sa.		☿ Stationary.
17	*Su.*	*4th Sunday after Eaſter.*	10. ☾ ☐ ♌ 7h. 17′.
18	M.	From Eaſt. in 1 m. 3 ret.	12. ☾ ☿ ☍ ♊ diff. lat. 41′.
19	Tu.	*Q. Charlotte born* 1744.	14. ☾ ☌ ♍ 1h. 56′.
20	W.	[Dunſtan.	☾ ☌ ♍ 23h. 20′.
21	Th.		15. ☾ ☌ ♎ Im. 12h. 1′. * 6′. N. of ☽'s cent.
22	F.		
23	Sa.		Em. 13h. 10′. * 5′. N.
24	*Su.*	*5th Su. aft. Eaſt. Rog. Su.*	16. ☾ 4 ad ☍ ♎ 5h. 1′.
25	M.	From Eaſt. in 5 w. 4 ret.	☾ ☌ ♎ 13h. 2′.
26	Tu.	Auguſt. 1st Abp. of Cant.	17. ☌ ☍ ♐ diff. lat. 54′.
27	W.	Venerable Bede.	20. ☉ enters ♊ at 2h. 34′.
28	Th.	*Aſcenſion day, Holy Th.*	21. ☾ ☐ ♑ 5h. 47′.
29	F.	*K. Charles II. reſtored.*	25. ☿ ☐ ♊ diff. lat. 21′.
30	Sa.	[On mor. of aſc. 5 ret.	26. ☾ ☌ ♐ 1h. 4′.
			☾ ☍ ♐ 7h. 55′.
31	*Su.*	*Sun after Aſcenſion-day.*	28. ☾ ☌ 4h. 57′.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. North.	Equat. of Time. Sub.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	F.	1. 11. 34. 41	2. 36. 33, 1	15. 19. 25	3. 13, 1	7,0
2	Sa.	1. 12. 32. 47	2. 40. 22, 6	15. 37. 15	3. 20, 1	6,4
3	*Su.*	1. 13. 30. 52	2. 44. 12, 7	15. 54. 48	3. 26, 5	5,9
4	M.	1. 14. 28. 55	2. 48. 3, 4	16. 12. 7	3. 32, 4	5,3
5	Tu.	1. 15. 26. 57	2. 51. 54, 6	16. 29. 9	3. 37, 7	4,8
6	W.	1. 16. 24. 56	2. 55. 46, 4	16. 45. 55	3. 42, 5	4,2
7	Th.	1. 17. 22. 54	2. 59. 38, 7	17. 2. 24	3. 46, 7	3,7
8	F.	1. 18. 20. 50	3. 3. 31, 6	17. 18. 36	3. 50, 4	3,1
9	Sa.	1. 19. 18. 45	3. 7. 25, 1	17. 34. 31	3. 53, 5	2,6
10	*Su.*	1. 20. 16. 37	3. 11. 19, 0	17. 50. 7	3. 56, 1	2,0
11	M.	1. 21. 14. 27	3. 15. 13, 5	18. 5. 26	3. 58, 1	1,4
12	Tu.	1. 22. 12. 16	3. 19. 8, 6	18. 20. 27	3. 59, 5	0,9
13	W.	1. 23. 10. 3	3. 23. 4, 2	18. 35. 10	4. 0, 4	0,4
14	Th.	1. 24. 7. 48	3. 27. 0, 4	18. 49. 33	4. 0, 8	0,2
15	F.	1. 25. 5. 32	3. 30. 57, 2	19. 3. 38	4. 0, 6	0,8
16	Sa.	1. 26. 3. 14	3. 34. 54, 6	19. 17. 23	3. 59, 8	1,4
17	*Su.*	1. 27. 0. 55	3. 38. 52, 5	19. 30. 49	3. 58, 4	1,9
18	M.	1. 27. 58. 34	3. 42. 50, 9	19. 43. 54	3. 56, 5	2,4
19	Tu.	1. 28. 56. 12	3. 46. 49, 9	19. 56. 40	3. 54, 1	3,0
20	W.	1. 29. 53. 50	3. 50. 49, 5	20. 9. 6	3. 51, 1	3,6
21	Th.	2. 0. 51. 26	3. 54. 49, 7	20. 21. 11	3. 47, 5	4,2
22	F.	2. 1. 49. 1	3. 58. 50, 4	20. 32. 56	3. 43, 3	4,6
23	Sa.	2. 2. 46. 36	4. 2. 51, 6	20. 44. 19	3. 38, 7	5,2
24	*Su.*	2. 3. 44. 9	4. 6. 53, 3	20. 55. 21	3. 33, 5	5,8
25	M.	2. 4. 41. 42	4. 10. 55, 7	21. 6. 2	3. 27, 7	6,2
26	Tu.	2. 5. 39. 14	4. 14. 58, 5	21. 16. 21	3. 21, 5	6,8
27	W.	2. 6. 36. 46	4. 19. 1, 8	21. 26. 18	3. 14, 7	7,2
28	Th.	2. 7. 34. 17	4. 23. 5, 7	21. 35. 53	3. 7, 5	7,8
29	F.	2. 8. 31. 47	4. 27. 10, 0	21. 45. 5	2. 59, 7	8,2
30	Sa.	2. 9. 29. 16	4. 31. 14, 7	21. 53. 55	2. 51, 5	8,5
31	*Su.*	2. 10. 26. 44	4. 35. 19, 9	22. 2. 23	2. 43, 0	9,0

Days	Semidiameter of the Sun.	Time of D° passing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Distance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	15. 54, 3	1. 6, 0	2. 25, 2	0. 003837	6. 28. 22
7	15. 53, 0	1. 6, 4	2. 24, 8	0. 004435	6. 28. 3
13	15. 52, 0	1. 7, 0	2. 24, 6	0. 004975	6. 27. 44
19	15. 50, 7	1. 7, 4	2. 24, 1	0. 005479	6. 27. 25
25	15. 49, 6	1. 7, 9	2. 23, 8	0. 005946	6. 27. 6

Eclipses of the SATELLITES of JUPITER.

I. Satellite. Immersions.		II. Satellite. Immersions.		III. Satellite.	
Days	H. M. S.	Days	H. M. S.	Days	H. M. S.
1	16. 35. 41	1	13. 59. 15	6	18. 5. 22 I
3	11. 4. 12	5	3. 18. 3	6	21. 40. 56 E
5	5. 32. 46	8	16. 36. 50	13	22. 5. 22 I
7	0. 1. 14	12	5. 55. 36	14	1. 40. 54 E
8	18. 29. 39	15	19. 14. 6	21	2. 4. 54 I
10	12. 58. 9	19	8. 32. 26	21	5. 40. 23 E
12	7. 26. 33	22	21. 50. 46	28	6. 4. 4 I
14	1. 54. 56	26	11. 9. 2	28	9. 39. 25 E
15	20. 23. 17	30	0. 27. 6		
17	14*51. 37			IV. Satellite.	
19	9. 19. 51				
21	3. 48. 8			4	18. 0. 44 I
22	22. 16. 23			4	22. 46. 33 E
24	16. 44. 32			21	12. 11. 14 I
26	11. 12. 41			21	16. 56. 34 E
28	5. 40. 53				
30	0. 8. 57				
31	18. 37. 5				

Days.	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Paſſ. over Merid
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
			MERCURY. Inf. ☌ 20d. 9½h.			
1	5. 28. 28	5. 9 N	2. 1. 44	2. 35 N	23. 5 N	1. 20
7	6. 20. 12	3. 2	2. 4. 15	1. 55	22. 55	1. 8
13	7. 9. 8	0. 49 N	2. 3. 45	0. 37 N	21. 32	0. 43
19	7. 26. 26	1. 18 S	2. 1. 2	1. 5 S	19. 19	0. 9
25	8. 13. 0	3. 12	1. 27. 45	2. 41	17. 4	23. 28
			VENUS.			
1	5. 5. 34	3. 21 N	2. 24. 1	2. 28 N	25. 49 N	2. 57
7	5. 15. 19	3. 23	3. 0. 39	2. 38	26. 6	3. 3
13	5. 25. 3	3. 20	3. 7. 10	2. 44	26. 0	3. 8
19	6. 4. 45	3. 11	3. 13. 32	2. 45	25. 32	3. 13
25	6. 14. 27	2. 56	3. 19. 44	2. 42	24. 41	3. 16
			MARS.			
1	11. 7. 51	1. 44 S	0. 4. 10	1. 11 S	0. 35 N	21. 40
7	11. 11. 39	1. 42	0. 8. 45	1. 10	2. 24	21. 33
13	11. 15. 27	1. 39	0. 13. 21	1. 8	4. 13	21. 27
19	11. 19. 14	1. 35	0. 17. 53	1. 7	5. 59	21. 20
25	11. 23. 0	1. 31	0. 22. 24	1. 5	7. 43	21. 12
			JUPITER. □ 21d. 10½h.			
1	10. 17. 53	0. 50 S	10. 28. 54	0. 48 S	12. 37 S	19. 27
7	10. 18. 24	0. 51	10. 29. 42	0. 50	12. 21	19. 7
13	10. 18. 56	0. 51	11. 0. 25	0. 51	12. 7	18. 45
19	10. 19. 28	0. 52	11. 1. 3	0. 53	11. 55	18. 25
25	10. 20. 0	0. 52	11. 1. 36	0. 55	11. 46	18. 3
			SATURN. □ 13d. 0h.			
1	4. 29. 2	1. 32 N	4. 22. 53	1. 34 N	15. 23 N	7. 6
7	4. 29. 15	1. 32	4. 23. 0	1. 34	15. 20	6. 43
13	4. 29. 28	1. 32	4. 23. 10	1. 33	15. 16	6. 20
19	4. 29. 40	1. 33	4. 23. 25	1. 33	15. 11	5. 57
25	4. 29. 53	1. 33	4. 23. 42	1. 32	15. 5	5. 34

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
1	F.	0. 25. 56. 38	1. 1. 57. 4	0. 16. 10 N	0. 17. 8 S
2	Sa.	1. 7. 59. 45	1. 14. 4. 52	0. 50. 27 S	1. 23. 26
3	*Su.*	1. 20. 12. 28	1. 26. 23. 0	1. 55. 41	2. 26. 44
4	M.	2. 2. 36. 34	2. 8. 53. 11	2. 56. 8	3. 23. 45
5	Tu.	2. 15. 13. 7	2. 21. 36. 22	3. 49. 10	4. 11. 54
6	W.	2. 28. 3. 10	3. 4. 33. 32	4. 31. 40	4. 48. 8
7	Th.	3. 11. 7. 36	3. 17. 45. 27	5. 0. 56	5. 9. 52
8	F.	3. 24. 27. 5	4. 1. 12. 40	5. 14. 42	5. 15. 12
9	Sa.	4. 8. 2. 8	4. 14. 55. 35	5. 11. 22	5. 2. 58
10	*Su.*	4. 21. 52. 52	4. 28. 54. 0	4. 50. 7	4. 32. 47
11	M.	5. 5. 58. 48	5. 13. 7. 7	4. 11. 10	3. 45. 30
12	Tu.	5. 20. 18. 43	5. 27. 33. 15	3. 16. 6	2. 43. 22
13	W.	6. 4. 50. 12	6. 12. 9. 12	2. 7. 49	1. 29. 58
14	Th.	6. 19. 29. 26	6. 26. 50. 24	0. 50. 37 S	0. 10. 21 S
15	F.	7. 4. 11. 10	7. 11. 31. 5	0. 30. 2 N	1. 9. 49 N
16	Sa.	7. 18. 49. 7	7. 26. 4. 38	1. 48. 16	2. 24. 41
17	*Su.*	8. 3. 16. 44	8. 10. 24. 43	2. 58. 29	3. 29. 11
18	M.	8. 17. 27. 51	8. 24. 25. 49	3. 56. 15	4. 19. 29
19	Tu.	9. 1. 18. 2	9. 8. 4. 23	4. 38. 29	4. 53. 20
20	W.	9. 14. 44. 37	9. 21. 18. 53	5. 4. 0	5. 10. 28
21	Th.	9. 27. 47. 16	10. 4. 10. 2	5. 12. 48	5. 11. 14
22	F.	10. 10. 27. 25	10. 16. 39. 58	5. 5. 54	4. 57. 3
23	Sa.	10. 22. 48. 10	10. 28. 52. 32	4. 44. 53	4. 29. 34
24	*Su.*	11. 4. 53. 36	11. 10. 52. 3	4. 11. 25	3. 50. 41
25	M.	11. 16. 48. 26	11. 22. 43. 28	3. 27. 34	3. 2. 13
26	Tu.	11. 28. 37. 52	0. 4. 32. 3	2. 35. 8	2. 6. 22
27	W.	0. 10. 26. 44	0. 16. 22. 29	1. 36. 12	1. 4. 56
28	Th.	0. 22. 19. 44	0. 28. 19. 6	0. 32. 52 N	0. 0. 18 N
29	F.	1. 4. 20. 54	1. 10. 25. 40	0. 32. 30 S	1. 5. 10 S
30	Sa.	1. 16. 33. 36	1. 22. 45. 7	1. 37. 18	2. 8. 34
31	*Su.*	1. 29. 0. 14	2. 5. 19. 13	2. 38. 34	3. 6. 56

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſſage over Merid.	☽'s Right Aſcen. at Noon.	☽'s Right Aſc. at Midn.	☽'s Declinat. at Noon.	☽'s Declin. at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	F.	30	23. 43	23. 57	29. 53	10. 17 N	11. 54 N
2	Sa.	1	♂	35. 54	42. 3	13. 24	14. 45
3	*Su.*	2	0. 31	48. 18	54. 40	15. 58	17. 0
4	M.	3	1. 20	61. 9	67. 43	17. 50	18. 27
5	Tu.	4	2. 10	74. 24	81. 9	18. 51	19. 1
6	W.	5	3. 2	87. 57	94. 48	18. 56	18. 35
7	Th.	6	3. 54	101. 40	108. 32	18. 0	17. 10
8	F.	7	4. 48	115. 24	122. 15	16. 6	14. 47
9	Sa.	8	5. 40	129. 5	135. 53	13. 16	11. 33
10	*Su.*	9	6. 32	142. 40	149. 27	9. 39	7. 36
11	M.	10	7. 25	156. 13	163. 0	5. 26	3. 10 N
12	Tu.	11	8. 18	169. 49	176. 40	0. 50 N	1. 31 S
13	W.	12	9. 11	183. 35	190. 35	3. 53 S	6. 11
14	Th.	13	10. 6	197. 40	204. 50	8. 25	10. 31
15	F.	14	11. 3	212. 6	219. 27	12. 27	14. 12
16	Sa.	15	12. 0	226. 52	234. 20	15. 42	16. 57
17	*Su.*	16	12. 58	241. 50	249. 19	17. 55	18. 35
18	M.	17	13. 55	256. 45	264. 7	18. 57	19. 2
19	Tu.	18	14. 51	271. 22	278. 29	18. 49	18. 20
20	W.	19	15. 43	285. 26	292. 12	17. 37	16. 40
21	Th.	20	16. 33	298. 48	305. 14	15. 31	14. 12
22	F.	21	17. 20	311. 30	317. 36	12. 44	11. 8
23	Sa.	22	18. 4	323. 35	329. 26	9. 27	7. 40
24	*Su.*	23	18. 46	335. 12	340. 53	5. 49	3. 56
25	M.	24	19. 29	346. 31	352. 7	2. 2 S	0. 6 S
26	Tu.	25	20. 11	357. 43	3. 20	1. 50 N	3. 44 N
27	W.	26	20. 53	8. 58	14. 40	5. 37	7. 27
28	Th.	27	21. 37	20. 26	26. 18	9. 13	10. 53
29	F.	28	22. 24	32. 16	38. 21	12. 28	13. 56
30	Sa.	29	23. 13	44. 34	50. 55	15. 15	16. 24
31	*Su.*	1	♂	57. 23	63. 58	17. 23	18. 9

Days of the Month.	Days of the Week.	Semidr. ☽ at Noon.	Semidr. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	F.	14. 52	14. 54	54. 32	54. 41	5186	5174
2	Sa.	14. 57	15. 0	54. 51	55. 1	5161	5148
3	*Su.*	15. 3	15. 6	55. 13	55. 26	5132	5115
4	M.	15. 10	15. 13	55. 39	55. 52	5098	5081
5	Tu.	15. 17	15. 22	56. 7	56. 22	5062	5042
6	W.	15. 26	15. 30	56. 38	56. 54	5022	5002
7	Th.	15. 35	15. 39	57. 10	57. 27	4981	4960
8	F.	15. 44	15. 49	57. 45	58. 3	4937	4915
9	Sa.	15. 54	15. 59	58. 21	58. 39	4892	4870
10	*Su.*	16. 4	16. 8	58. 56	59. 14	4849	4827
11	M.	16. 13	16. 17	59. 30	59. 45	4808	4789
12	Tu.	16. 21	16. 24	59. 59	60. 11	4772	4758
13	W.	16. 27	16. 28	60. 20	60. 27	4747	4739
14	Th.	16. 29	16. 29	60. 31	60. 31	4734	4734
15	F.	16. 29	16. 27	60. 28	60. 21	4737	4746
16	Sa.	16. 24	16. 20	60. 11	59. 57	4758	4775
17	*Su.*	16. 16	16. 10	59. 40	59. 20	4795	4820
18	M.	16. 4	15. 58	58. 58	58. 35	4846	4875
19	Tu.	15. 51	15. 44	58. 10	57. 45	4906	4937
20	W.	15. 37	15. 30	57. 19	56. 53	4970	5003
21	Th.	15. 23	15. 17	56. 29	56. 6	5033	5063
22	F.	15. 12	15. 6	55. 45	55. 26	5090	5115
23	Sa.	15. 2	14. 58	55. 9	54. 54	5137	5157
24	*Su.*	14. 54	14. 52	54. 42	54. 33	5173	5185
25	M.	14. 50	14. 49	54. 26	54. 22	5194	5199
26	Tu.	14. 48	14. 48	54. 20	54. 20	5202	5202
27	W.	14. 49	14. 50	54. 23	54. 28	5198	5191
28	Th.	14. 52	14. 55	54. 35	54. 44	5182	5170
29	F.	14. 58	15. 1	54. 55	55. 7	5155	5140
30	Sa.	15. 5	15. 8	55. 20	55. 34	5123	5104
31	*Su.*	15. 13	15. 17	55. 49	56. 4	5085	5065

Distances of ☽'s Center from Stars, and from ☉ east of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
4		84. 5. 32	82. 31. 55	80. 58. 8	79. 24. 9
5		71. 31. 36	69. 56. 34	68. 21. 21	66. 45. 58
6	Regulus.	58. 46. 10	57. 9. 40	55. 32. 58	53. 56. 6
7		45. 48. 57	44. 10. 58	42. 32. 50	40. 54. 30
8		32. 40. 40	31. 1. 31	29. 22. 16	27. 42. 56
9		72. 31. 48	70. 49. 15	69. 6. 26	67. 23. 22
10		58. 44. 15	56. 59. 39	55. 14. 48	53. 29. 42
11	Spica ♍	44. 40. 25	42. 53. 48	41. 6. 58	39. 19. 54
12		30. 21. 11	28. 32. 48	26. 44. 14	24. 55. 30
13		15. 49. 37			
13		61. 41. 1	59. 52. 24	58. 3. 45	56. 15. 1
14	Antares.	47. 11. 6	45. 22. 20	43. 33. 43	41. 45. 14
15		32. 45. 58	30. 59. 9	29. 12. 48	27. 26. 58
16		71. 30. 45	69. 52. 0	68. 13. 43	66. 35. 52
17	α Aquilæ.	58. 34. 55	57. 0. 42	55. 27. 16	53. 54. 37
18		43. 17. 15	41. 32. 19	39. 47. 46	38. 3. 34
19	β Capri-corni.	29. 28. 28	27. 46. 36	26. 5. 8	24. 24. 3
20		16. 4. 42			
20		65. 18. 4	63. 44. 8	62. 10. 41	60. 37. 43
21	α Pegasi.	53. 0. 56	51. 31. 14	50. 2. 8	48. 33. 39
22		41. 21. 12	39. 56. 56	38. 33. 29	37. 10. 54
23	α Arietis.	71. 9. 39	69. 40. 11	68. 10. 57	66. 41. 57
24		59. 20. 26			
21			121. 26. 25	119. 58. 16	118. 30. 27
22		111. 16. 18	109. 50. 22	108. 24. 43	106. 59. 21
23		99. 56. 22	98. 32. 28	97. 8. 47	95. 45. 18
24	The Sun.	88. 50. 45	87. 28. 19	86. 6. 0	84. 43. 50
25		77. 54. 37	76. 33. 2	75. 11. 28	73. 49. 58
26		67. 2. 52	65. 41. 29	64. 20. 5	62. 58. 39
27		56. 10. 57	54. 49. 13	53. 27. 24	52. 5. 30
28		45. 14. 43	43. 52. 15	42. 29. 38	41. 6. 52

Diſtances of ☽'s Center from Stars, and from ☉ eaſt of her.

Days.	Stars Names.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
4		77. 50. 1	76. 15. 41	74. 41. 10	73. 6. 29
5		65. 10. 23	63. 34. 37	61. 58. 39	60. 22. 31
6	Regulus.	52. 19. 2	50. 41. 47	49. 4. 21	47. 26. 44
7		39. 16. 0	37. 37. 22	35. 58. 36	34. 19. 42
8		26. 3. 32			
8		79. 19. 29	77. 37. 57	75. 56. 9	74. 14. 6
9		65. 40. 2	63. 56. 28	62. 12. 39	60. 28. 35
10	Spica ♍	51. 44. 20	49. 58. 44	48. 12. 52	46. 26. 46
11		37. 32. 35	35. 45. 4	33. 57. 17	32. 9. 21
12		23. 6. 35	21. 17. 32	19. 28. 20	17. 39. 1
13		54. 26. 14	52. 37. 26	50. 48. 38	48. 59. 52
14	Antares.	39. 56. 51	38. 8. 40	36. 20. 47	34. 33. 14
15		25. 41. 41			
15		78. 9. 4	76. 29. 3	74. 49. 18	73. 9. 52
16	α Aquilæ.	64. 58. 30	63. 21. 39	61. 45. 25	60. 9. 50
17		52. 22. 49			
17		50. 20. 17	48. 34. 2	46. 48. 7	45. 2. 31
18	β Capri-	36. 19. 45	34. 36. 21	32. 53. 20	31. 10. 42
19	corni.	22. 43. 22	21. 3. 5	19. 23. 13	17. 43. 45
20		59. 5. 17	57. 33. 22	56. 2. 0	54. 31. 12
21	α Pegaſi.	47. 5. 47	45. 38. 34	44. 12. 3	42. 46. 16
22		35. 49. 11			
22		77. 10. 7	75. 39. 37	74. 9. 22	72. 39. 23
23	α Arietis.	65. 13. 12	63. 44. 40	62. 16. 23	60. 48. 17
21		117. 2. 58	115. 35. 50	114. 9. 1	112. 42. 30
22		105. 34. 16	104. 9. 26	102. 44. 50	101. 20. 29
23		94. 22. 1	92. 58. 57	91. 36. 3	90. 13. 19
24	The Sun.	83. 21. 46	81. 59. 50	80. 38. 1	79. 16. 16
25		72. 28. 31	71. 7. 5	69. 45. 40	68. 24. 16
26		61. 37. 12	60. 15. 43	58. 54. 11	57. 32. 36
27		50. 43. 32	49. 21. 29	47. 59. 20	46. 37. 4
28		39. 43. 56			

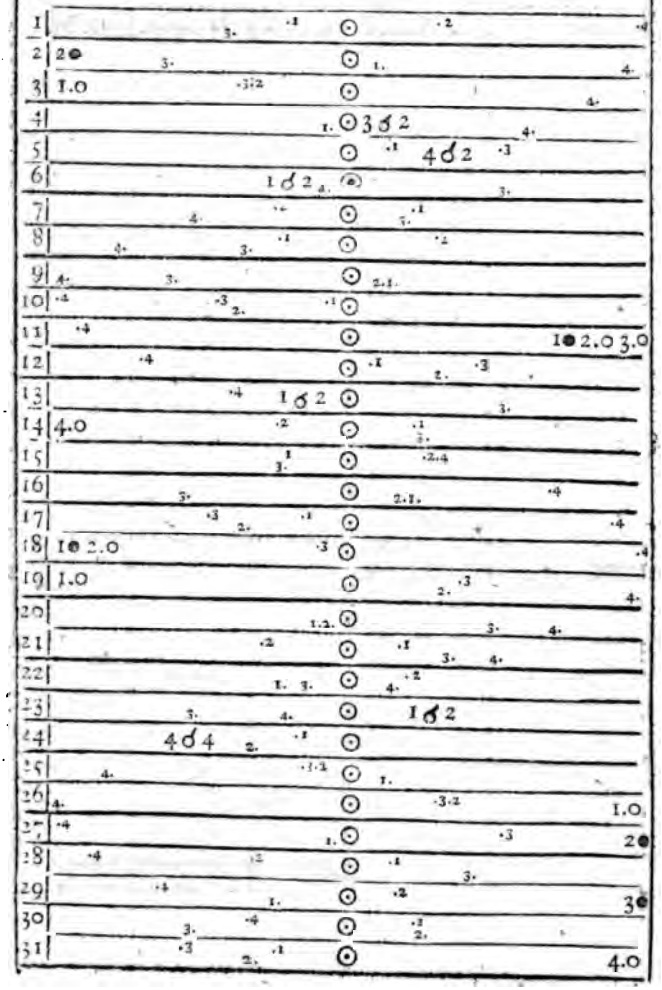
Distances of ☽'s Center from ☉, and from Stars west of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
6	The Sun.	41. 50. 18	43. 20. 4	44. 50. 2	46. 20. 13
7		53. 54. 22	55. 25. 51	56. 57. 34	58. 29. 30
8		66. 12. 37	67. 45. 58	69. 19. 33	70. 53. 23
9		78. 46. 11	80. 21. 31	81. 57. 6	83. 32. 56
10		91. 35. 54	93. 13. 16	94. 50. 54	96. 28. 46
11		104. 41. 57	106. 21. 20	108. 0. 56	109. 40. 47
12		118. 3. 27	119. 44. 38	121. 26. 1	
10	Pollux.	33. 45. 51	35. 23. 26	37. 1. 45	38. 40. 47
11		47. 5. 17	48. 47. 45	50. 30. 40	52. 14. 0
12		60. 56. 32			
12	Regulus.	23. 55. 22	25. 41. 28	27. 28. 0	29. 14. 58
13		38. 14. 51	40. 3. 40	41. 52. 41	43. 41. 54
14		52. 50. 8	54. 40. 8	56. 30. 10	58. 20. 16
15		67. 30. 50	69. 20. 53	71. 10. 52	73. 0. 45
16		82. 8. 20			
16	Spica ♍	28. 24. 1	30. 13. 24	32. 2. 35	33. 51. 34
17		42. 53. 1	44. 40. 32	46. 27. 44	48. 14. 38
18		57. 4. 9	58. 49. 3	60. 33. 36	62. 17. 46
19		70. 52. 47	72. 34. 39	74. 16. 7	75. 57. 12
20		84. 16. 39			
20	Antares.	39. 17. 45	40. 54. 21	42. 30. 42	44. 6. 46
21		52. 3. 6	53. 37. 32	55. 11. 40	56. 45. 32
22		64. 30. 31	66. 2. 42	67. 34. 38	69. 6. 20
23		76. 41. 12			
23	δ Capricorni.	21. 51. 18	23. 22. 26	24. 53. 22	26. 24. 7
24		33. 55. 6	35. 24. 49	36. 54. 25	38. 23. 53
25		45. 49. 35			
25	α Aquilæ.	52. 27. 55	53. 44. 28	55. 1. 19	56. 18. [illegible]
26		62. 49. 9	64. 8. 6	65. 27. 17	66. 46. 42
27		73. 27. 6	74. 47. 48	76. 8. 40	77. 29. 44
28		84. 17. 34			
28	Fomalhaut.	54. 53. 36	56. 10. 25	57. 27. 45	58. 45. 35
29		65. 21. 45	66. 42. 17	68. 3. 12	69. 24. 30
30		76. 16. 13	77. 39. 32	79. 3. 9	80. 27. 2

Diſtances of ☽'s Center from ☉, and from Stars weſt of her.

Days.	Stars Names.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
5				38. 51. 22	40. 20. 44
6		47. 50. 37	49. 21. 13	50. 52. 3	52. 23. 6
7		60. 1. 40	61. 34. 3	63. 6. 40	64. 39. 34
8	The Sun.	72. 27. 28	74. 1. 46	75. 36. 19	77. 11. 8
9		85. 9. 2	86. 45. 23	88. 21. 58	89. 58. 49
10		98. 6. 54	99. 45. 18	101. 23. 56	103. 2. 49
11		111. 20. 52	113. 1. 11	114. 41. 43	116. 22. 28
10	Pollux.	40. 20. 30	42. 0. 52	43. 41. 46	45. 23. 15
11		53. 57. 47	55. 41. 56	57. 26. 28	59. 11. 20
12		31. 2. 17	32. 49. 59	34. 37. 58	36. 26. 16
13	Regulus.	45. 31. 18	47. 20. 50	49. 10. 29	51. 0. 15
14		60. 10. 24	62. 0. 32	63. 50. 39	65. 40. 45
15		74. 50. 34	76. 40. 15	78. 29. 46	80. 19. 9
16		35. 40. 20	37. 28. 53	39. 17. 11	41. 5. 14
17	Spica ♍	50. 1. 14	51. 47. 28	53. 33. 22	55. 18. 56
18		64. 1. 34	65. 44. 57	67. 27. 57	69. 10. 34
19		77. 37. 53	79. 18. 10	80. 58. 4	82. 37. 33
20		45. 42. 34	47. 18. 7	48. 53. 23	50. 28. 23
21	Antares.	58. 19. 6	59. 52. 22	61. 25. 21	62. 58. 4
22		70. 37. 46	72. 8. 58	73. 39. 56	75. 10. 41
23	β Capri-	27. 54. 40	29. 25. 2	30. 55. 14	32. 25. 15
24	corni.	39. 53. 13	41. 22. 27	42. 51. 34	44. 20. 38
25		57. 36. 0	58. 53. 52	60. 12. 0	61. 30. 26
26	α Aquilæ.	68. 6. 22	69. 26. 14	70. 46. 19	72. 6. 36
27		78. 50. 58	80. 12. 22	81. 33. 57	82. 55. 40
28		60. 3. 54	61. 22. 41	62. 41. 56	64. 1. 37
29	Fomal-	70. 46. 11	72. 8. 14	73. 30. 36	74. 53. 15
30	haut.	81. 51. 13			

Configurations of the SATELLITES of JUPITER at ½ Hour paſt 3 o' th' Clock in the Morning.



Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	M.	Nicomede. Term ends.
2	Tu.	
3	W.	
4	Th.	*K. Geo.* III. *born* 1738.
5	F.	Boniface. [Oxf. T. ends.
6	Sa.	
7	*Su.*	*Whit-Sunday.*
8	M.	*Whit-Monday.*
9	Tu.	*Whit-Tuesday.*
10	W.	*Prs. Amelia born.*
11	Th.	*St. Barnabas.*
12	F.	
13	Sa.	
14	*Su.*	*Trinity-Sunday.*
15	M.	On Mor. of H. Tr. 1 ret.
16	Tu.	
17	W.	St. Alban. Oxf. T. begins.
18	Th.	
19	F.	Trinity Term begins.
20	Sa.	Transl. of Edward K. of [W. Sax.
21	*Su.*	*1st Su. after Trinity.*
22	M.	In 8 days of H. Tr. 2 ret.
23	Tu.	
24	W.	*Nativity of St. John Baptist.*
25	Th.	
26	F.	
27	Sa.	
28	*Su.*	*2d Su. after Trinity.*
29	M.	*St. Peter.* In 15 days of
30	Tu.	[H. Tr. 3 ret.

Phases of the Moon.

	D. H. M.
First Quarter	8. 2. 23
Full Moon	14. 21. 52
Last Quarter	22. 14. 39
New Moon	30. 10. 18

Other Phenomena.

D.

5. ☾ 1 ad ☌ ♋ 8h. 40′.
☾ 2 ad ☌ ♋ 9h. 36′.
☾ ☍ ♑ 14h. 0′.
6. ☾ ☌ ♌ 3h. 59′.
☾ ☌ ♌ 12h. 42′.
10. ☾ ☌ ♍ 9h. 13′.
11. ☾ ☌ ♏ 7h. 16′.
☾ ☌ ♎ 20h. 56′.
12. ☾ 4 ad ☾ ♎ 13h. 42′.
17. ☾ ☍ ♅ 14h. 47′.
☿ ☌ ♉ diff. Lat. 25′.
20. ☉ enters ♋ at 11h. 21′.
21. ♃ Stationary.
23. ☾ ☌ ♓ 8h. 49′.
☾ ☌ ♓ 15h. 40′.
26. ☾ ♂ 7h. 12′.
27. ☾ 1 ad ☌ ♉ Imm. 15h. 46½′. * 11′. S. of ☽'s Cent. Em 16h. 26′. * 11¼′. S.
☾ 2 ad ☌ ♉ 17h. 26′.
☾ ☌ ♉ 19h. 57′.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. North.	Equat. of Time. Sub.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	M.	2. 11. 24. 11	4. 39. 25,5	22. 10. 27	2. 34,0	9,5
2	Tu.	2. 12. 21. 38	4. 43. 31,5	22. 18. 8	2. 24,5	9,8
3	W.	2. 13. 19. 3	4. 47. 37,9	22. 25. 26	2. 14,7	10,1
4	Th.	2. 14. 16. 28	4. 51. 44,6	22. 32. 20	2. 4,6	10,4
5	F.	2. 15. 13. 51	4. 55. 51,6	22. 38. 50	1. 54,2	10,7
6	Sa.	2. 16. 11. 13	4. 59. 58,9	22. 44. 57	1. 43,5	11,1
7	*Su.*	2. 17. 8. 35	5. 4. 6,6	22. 50. 40	1. 32,4	11,3
8	M.	2. 18. 5. 55	5. 8. 14,5	22. 55. 59	1. 21,1	11,5
9	Tu.	2. 19. 3. 14	5. 12. 22,5	23. 0. 54	1. 9,6	11,8
10	W.	2. 20. 0. 33	5. 16. 30,9	23. 5. 24	0. 57,8	11,9
11	Th.	2. 20. 57. 50	5. 20. 39,5	23. 9. 30	0. 45,9	12,2
12	F.	2. 21. 55. 6	5. 24. 48,1	23. 13. 11	0. 33,7	12,2
13	Sa.	2. 22. 52. 21	5. 28. 57,0	23. 16. 28	0. 21,5	12,4
14	*Su.*	2. 23. 49. 36	5. 33. 6,0	23. 19. 21	0. 9,1	12,5
15	M.	2. 24. 46. 50	5. 37. 15,1	23. 21. 49	Ad: 3,4	12,7
16	Tu.	2. 25. 44. 4	5. 41. 24,3	23. 23. 52	0. 16,1	12,7
17	W.	2. 26. 41. 17	5. 45. 33,7	23. 25. 30	0. 28,8	12,9
18	Th.	2. 27. 38. 30	5. 49. 43,1	23. 26. 44	0. 41,7	12,8
19	F.	2. 28. 35. 43	5. 53. 52,5	23. 27. 33	0. 54,5	12,9
20	Sa.	2. 29. 32. 56	5. 58. 2,0	23. 27. 57	1. 7,4	12,9
21	*Su.*	3. 0. 30. 9	6. 2. 11,5	23. 27. 56	1. 20,3	12,8
22	M.	3. 1. 27. 21	6. 6. 20,9	23. 27. 31	1. 33,1	12,8
23	Tu.	3. 2. 24. 34	6. 10. 30,3	23. 26. 41	1. 45,9	12,8
24	W.	3. 3. 21. 47	6. 14. 39,7	23. 25. 26	1. 58,7	12,8
25	Th.	3. 4. 19. 0	6. 18. 49,0	23. 23. 46	2. 11,5	12,6
26	F.	3. 5. 16. 13	6. 22. 58,2	23. 21. 42	2. 24,1	12,4
27	Sa.	3. 6. 13. 27	6. 27. 7,3	23. 19. 13	2. 36,5	12,3
28	*Su.*	3. 7. 10. 40	6. 31. 16,1	23. 16. 19	2. 48,8	12,1
29	M.	3. 8. 7. 53	6. 35. 24,9	23. 13. 1	3. 0,9	12,0
30	Tu.	3. 9. 5. 6	6. 39. 33,3	23. 9. 18	3. 12,9	11,7

Days of the Month.	Semidiameter of the Sun.	Time of D° passing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Distance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	15. 48, 8	1. 8, 3	2. 23, 5	0. 006406	6. 26. 43
7	15. 48, 1	1. 8, 6	2. 23, 3	0. 006703	6. 26. 24
13	15. 47, 5	1. 8, 7	2. 23, 2	0. 006924	6. 26. 5
19	15. 47, 1	1. 8, 8	2. 23, 0	0. 007099	6. 25. 46
25	15. 46, 9	1. 8, 8	2. 23, 0	0. 007217	6. 25. 27

Eclipses of the SATELLITES of JUPITER.

I. Satellite. Immersions.		II. Satellite. Immersions.		III. Satellite.	
Days	H. M. S.	Days	H. M. S.	Days	H. M. S.
2	13. 5. 10	2	13*45. 8	4	10. 2. 53 I
4	7. 33. 12	6	3. 3. 7	4	13. 38. 4 E
6	2. 1. 17	9	16. 21. 2	11	14* 1. 28 I
7	20. 29. 21	13	5. 38. 55	11	17. 36. 28 E
9	14*57. 23	16	18. 56. 44	18	17. 59. 57 I
11	9. 25. 23	20	8. 14. 30	18	21. 34. 47 E
13	3. 53. 26	23	21. 32. 16	25	21. 58. 27 I
14	22. 21. 27	27	10. 50. 1	26	1. 33. 9 E
16	16. 49. 28				
18	11. 17. 28			IV. Satellite.	
20	5. 45. 30				
22	0. 13. 29			7	6. 19. 26 I
23	18. 41. 30			7	11. 4. 4 E
25	13* 9. 35			24	0. 27. 14 I
27	7. 37. 39			24	5. 10. 54 E
29	2. 5. 42				
30	20. 33. 43				

Days.	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Paſſage over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
			MERCURY. Greateſt Elong. 15d.			
1	9. 2. 25	5. 6 S	1. 25. 45	3. 50 S	15. 29 N	22. 55
7	9. 20. 0	6. 18	1. 26. 45	4. 3	15. 31	22. 36
13	10. 9. 23	6. 57	2. 0. 23	3. 41	16. 39	22. 27
19	11. 1. 38	6. 43	2. 6. 25	2. 51	18. 36	22. 28
25	11. 28. 3	5. 10	2. 14. 40	1. 45	20. 51	22. 39
			VENUS. Greateſt Elong. 2d.			
1	6. 25. 43	2. 33 N	3. 26. 42	2. 32 N	23. 20 N	3. 18
7	7. 5. 21	2. 9	4. 2. 27	2. 18	21. 52	3. 17
13	7. 14. 57	1. 42	4. 7. 51	1. 57	20. 13	3. 14
19	7. 24. 32	1. 11	4. 12. 53	1. 27	18. 21	3. 9
25	8. 4. 5	0. 37	4. 17. 26	0. 50	16. 26	3. 2
			MARS.			
1	11. 27. 23	1. 26 S	0. 27. 38	1. 2 S	9. 41 N	21. 4
7	0. 1. 7	1. 21	1. 2. 5	0. 58	11. 17	20. 56
13	0. 4. 50	1. 16	1. 6. 30	0. 55	12. 50	20. 48
19	0. 8. 31	1. 11	1. 10. 54	0. 52	14. 17	20. 40
25	0. 12. 11	1. 5	1. 15. 13	0. 50	15. 39	20. 32
			JUPITER.			
1	10. 20. 37	0. 53 S	11. 2. 6	0. 56 S	11. 36 S	17. 35
7	10. 21. 9	0. 54	11. 2. 25	0. 58	11. 31	17. 11
13	10. 21. 41	0. 54	11. 2. 37	1. 0	11. 28	16. 47
19	10. 22. 13	0. 55	11. 2. 42	1. 2	11. 28	16. 23
25	10. 22. 45	0. 55	11. 2. 40	1. 3	11. 31	15. 59
			SATURN.			
1	5. 0. 8	1. 34 N	4. 24. 7	1. 31 N	14. 56 N	5. 7
7	5. 0. 21	1. 34	4. 24. 33	1. 31	14. 48	4. 44
13	5. 0. 34	1. 35	4. 25. 0	1. 31	14. 39	4. 21
19	5. 0. 47	1. 35	4. 25. 31	1. 30	14. 28	3. 59
25	5. 1. 0	1. 36	4. 26. 3	1. 30	14. 16	3. 36

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midnight.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
1	M.	2. 11. 42. 10	2. 18. 8. 58	3. 33. 7 S	3. 56. 54 S
2	Tu.	2. 24. 39. 42	3. 1. 14. 12	4. 17. 49	4. 35. 28
3	W.	3. 7. 52. 24	3. 14. 34. 1	4. 49. 36	4. 59. 55
4	Th.	3. 21. 18. 52	3. 28. 6. 42	5. 6. 8	5. 8. 5
5	F.	4. 4. 57. 25	4. 11. 50. 39	5. 5. 41	4. 58. 50
6	Sa.	4. 18. 46. 15	4. 25. 43. 52	4. 47. 38	4. 32. 5
7	*Su.*	5. 2. 43. 27	5. 9. 44. 44	4. 12. 25	3. 48. 54
8	M.	5. 16. 47. 40	5. 23. 51. 57	3. 21. 46	2. 51. 32
9	Tu.	6. 0. 57. 31	6. 8. 4. 2	2. 18. 30	1. 43. 18
10	W.	6. 15. 11. 27	6. 22. 19. 27	1. 6. 25 S	0. 28. 26 S
11	Th.	6. 29. 27. 44	7. 6. 36. 7	0. 9. 58 N	0. 48. 11 N
12	F.	7. 13. 44. 4	7. 20. 51. 7	1. 25. 33	2. 1. 30
13	Sa.	7. 27. 56. 49	8. 5. 0. 35	2. 35. 25	3. 6. 41
14	*Su.*	8. 12. 1. 59	8. 19. 0. 21	3. 34. 56	3. 59. 41
15	M.	8. 25. 55. 10	9. 2. 45. 56	4. 20. 43	4. 37. 44
16	Tu.	9. 9. 32. 25	9. 16. 14. 12	4. 50. 36	4. 59. 19
17	W.	9. 22. 50. 54	9. 29. 22. 32	5. 3. 52	5. 4. 21
18	Th.	10. 5. 49. 12	10. 12. 10. 44	5. 0. 59	4. 53. 52
19	F.	10. 18. 27. 30	10. 24. 39. 41	4. 43. 19	4. 29. 28
20	Sa.	11. 0. 47. 47	11. 6. 52. 9	4. 12. 38	3. 53. 5
21	*Su.*	11. 12. 53. 21	11. 18. 51. 55	3. 31. 6	3. 6. 57
22	M.	11. 24. 48. 32	0. 0. 43. 40	2. 40. 55	2. 13. 12
23	Tu.	0. 6. 38. 11	0. 12. 32. 39	1. 44. 7	1. 13. 57
24	W.	0. 18. 27. 50	0. 24. 24. 16	0. 42. 52 N	0. 11. 17 N
25	Th.	1. 0. 22. 41	1. 6. 23. 41	0. 20. 35 S	0. 52. 27 S
26	F.	1. 12. 27. 53	1. 18. 35. 45	1. 23. 56	1. 54. 46
27	Sa.	1. 24. 47. 45	2. 1. 4. 15	2. 24. 34	2. 52. 52
28	*Su.*	2. 7. 25. 33	2. 13. 51. 53	3. 19. 23	3. 43. 42
29	M.	2. 20. 23. 16	2. 26. 59. 46	4. 5. 23	4. 24. 1
30	Tu.	3. 3. 41. 10	3. 10. 27. 16	4. 39. 16	4. 50. 47

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſſage over Merid.	☽'s Right Aſcen. at Noon.	☽'s Right Aſc. at Midn.	☽'s Declination at Noon.	☽'s Declination at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	M.	2	0. 3	70. 42	77. 29	18. 42 N	19. 1 N
2	Tu.	3	0. 55	84. 22	91. 18	19. 4	18. 52
3	W.	4	1. 49	98. 16	105. 15	18. 25	17. 42
4	Th.	5	2. 43	112. 13	119. 9	16. 44	15. 31
5	F.	6	3. 36	126. 3	132. 54	14. 6	12. 28
6	Sa.	7	4. 28	139. 42	146. 27	10. 39	8. 41
7	*Su.*	8	5. 20	153. 10	159. 51	6. 35	4. 24 N
8	M.	9	6. 11	166. 33	173. 14	2. 8 N	0. 11 S
9	Tu.	10	7. 2	179. 58	186. 43	2. 30 S	4. 47
10	W.	11	7. 55	193. 33	200. 28	7. 0	9. 8
11	Th.	12	8. 49	207. 27	214. 32	11. 8	12. 59
12	F.	13	9. 44	221. 43	228. 58	14. 37	16. 2
13	Sa.	14	10. 41	236. 17	243. 39	17. 12	18. 6
14	*Su.*	15	11. 37	251. 2	258. 23	18. 43	19. 2
15	M.	16	12. 33	265. 42	272. 55	19. 4	18. 49
16	Tu.	17	13. 27	280. 1	286. 59	18. 18	17. 32
17	W.	18	14. 18	293. 48	300. 27	16. 32	15. 20
18	Th.	19	15. 7	306. 56	313. 15	13. 58	12. 27
19	F.	20	15. 53	319. 25	325. 27	10. 49	9. 5
20	Sa.	21	16. 36	331. 21	337. 9	7. 16	5. 23
21	*Su.*	22	17. 19	342. 53	348. 33	3. 28 S	1. 32 S
22	M.	23	18. 1	354. 11	359. 47	0. 24 N	2. 20 N
23	Tu.	24	18. 43	5. 24	11. 3	4. 14	6. 6
24	W.	25	19. 27	16. 45	22. 31	7. 54	9. 39
25	Th.	26	20. 12	28. 23	34. 22	11. 18	12. 50
26	F.	27	20. 59	40. 27	46. 41	14. 16	15. 32
27	Sa.	28	21. 48	53. 2	59. 33	16. 39	17. 35
28	*Su.*	29	22. 41	66. 12	72. 58	18. 18	18. 47
29	M.	30	23. 35	79. 51	86. 50	19. 2	19. 2
30	Tu.	1	♂	93. 53	100. 58	18. 46	18. 13

Days of the Month.	Days of the Week.	Semidr. ☽ at Noon.	Semidr. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Propor. Logar. at Noon.	Propor. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	M.	15. 21	15. 25	56. 20	56. 36	5045	5025
2	Tu.	15. 30	15. 34	56. 52	57. 8	5004	4984
3	W.	15. 38	15. 42	57. 23	57. 38	4965	4946
4	Th.	15. 46	15. 50	57. 51	58. 5	4930	4912
5	F.	15. 53	15. 56	58. 18	58. 30	4896	4881
6	Sa.	16. 0	16. 2	58. 42	58. 52	4866	4854
7	*Su.*	16. 5	16. 8	59. 2	59. 11	4842	4831
8	M.	16. 10	16. 12	59. 20	59. 27	4820	4811
9	Tu.	16. 14	16. 15	59. 33	59. 38	4804	4798
10	W.	16. 16	16. 16	59. 41	59. 42	4794	4793
11	Th.	16. 16	16. 16	59. 42	59. 40	4793	4795
12	F.	16. 14	16. 13	59. 35	59. 29	4801	4809
13	Sa.	16. 10	16. 7	59. 20	59. 8	4820	4834
14	*Su.*	16. 3	15. 59	58. 55	58. 39	4850	4870
15	M.	15. 54	15. 49	58. 22	58. 3	4891	4915
16	Tu.	15. 44	15. 38	57. 43	57. 22	4940	4966
17	W.	15. 32	15. 26	57. 0	56. 39	4994	5021
18	Th.	15. 21	15. 15	56. 18	55. 59	5048	5072
19	F.	15. 10	15. 5	55. 40	55. 23	5097	5119
20	Sa.	15. 1	14. 58	55. 7	54. 55	5140	5155
21	*Su.*	14. 55	14. 52	54. 44	54. 35	5170	5182
22	M.	14. 51	14. 50	54. 29	54. 26	5190	5194
23	Tu.	14. 50	14. 50	54. 25	54. 26	5195	5194
24	W.	14. 51	14. 53	54. 31	54. 38	5187	5178
25	Th.	14. 56	14. 59	54. 47	54. 58	5166	5152
26	F.	15. 2	15. 7	55. 12	55. 27	5133	5114
27	Sa.	15. 11	15. 16	55. 44	56. 2	5091	5068
28	*Su.*	15. 21	15. 27	56. 21	56. 41	5044	5018
29	M.	15. 32	15. 38	57. 1	57. 21	4992	4967
30	Tu.	15. 43	15. 48	57. 40	57. 58	4943	4921

Distances of ☽'s Center from Stars, and from ☉ east of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
3		49. 1. 30	47. 22. 23	45. 43. 8	44. 3. 43
4	Regulus.	35. 44. 41	34. 4. 32	32. 24. 20	30. 44. 6
5		22. 23. 2	20. 43. 20	19. 3. 57	17. 24. 57
6		61. 50. 8	60. 6. 15	58. 22. 14	56. 38. 5
7		47. 55. 10	46. 10. 12	44. 25. 6	42. 39. 53
8	Spica ♍	33. 51. 54	32. 5. 59	30. 19. 59	28. 33. 52
9		19. 42. 7			
9		65. 32. 17	63. 46. 41	62. 1. 3	60. 15. 21
10	Antares.	51. 26. 37	49. 40. 54	47. 55. 15	46. 9. 41
11		37. 23. 28	35. 38. 47	33. 54. 20	32. 10. 9
12		76. 6. 2	74. 28. 55	72. 52. 3	71. 15. 27
13	α Aquilæ.	63. 17. 31	61. 43. 12	60. 9. 26	58. 36. 16
14		51. 0. 20			
14		48. 43. 14	46. 58. 21	45. 13. 42	43. 29. 16
15	β Capri-	34. 50. 52	33. 8. 0	31. 25. 24	29. 43. 6
16	corni.	21. 15. 50			
16		70. 16. 46	68. 40. 50	67. 5. 19	65. 30. 11
17		57. 41. 23	56. 9. 3	54. 37. 16	53. 6. 0
18	α Pegasi.	45. 38. 17	44. 10. 40	42. 43. 49	41. 17. 46
19		34. 20. 31			
19		75. 26. 38	73. 55. 9	72. 23. 56	70. 53. 1
20		63. 22. 30	61. 53. 12	60. 24. 8	58. 55. 21
21	α Arietis.	51. 35. 5	50. 7. 46	48. 40. 42	47. 13. 53
22		40. 3. 35	38. 38. 23	37. 13. 30	35. 48. 56
20		118. 40. 4	117. 16. 17	115. 52. 41	114. 29. 16
21		107. 34. 42	106. 12. 16	104. 49. 58	103. 27. 47
22		96. 38. 24	95. 16. 47	93. 55. 13	92. 33. 41
23	The Sun.	85. 46. 29	84. 25. 4	83. 3. 38	81. 42. 10
24		74. 54. 2	73. 32. 12	72. 10. 16	70. 48. 15
25		63. 56. 21	62. 33. 34	61. 10. 35	59. 47. 23
26		52. 49. 6	51. 24. 51	50. 0. 23	48. 35. 44
27		41. 29. 8	40. 3. 9	38. 36. 57	

Diſtances of ☽'s Center from Stars, and from ☉ eaſt of her.

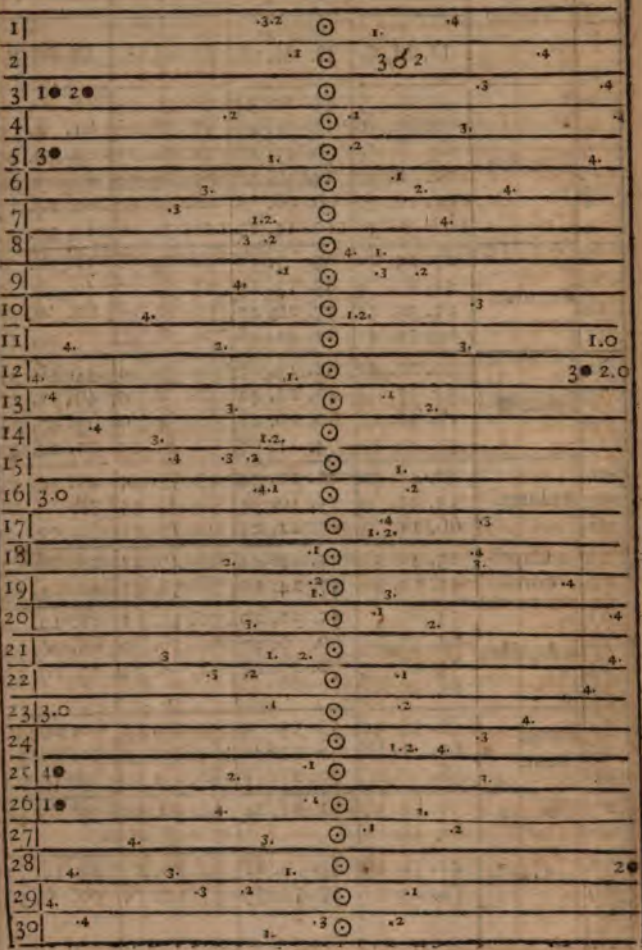
Days.	Stars Names.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
2	Regulus.	55. 36. 13	53. 57. 49	52. 19. 13	50. 40. 27
3		42. 24. 10	40. 44. 28	39. 4. 39	37. 24. 43
4		29. 3. 49	27. 23. 25	25. 43. 10	24. 3. 2
5		15. 46. 24			
5	Spica ♍	68. 44. 14	67. 0. 55	65. 17. 28	63. 33. 52
6		54. 53. 47	53. 9. 20	51. 24. 45	49. 40. 1
7		40. 54. 32	39. 9. 3	37. 23. 26	35. 37. 44
8		26. 47. 41	25. 1. 24	23. 15. 3	21. 28. 37
9	Antares.	58. 29. 37	56. 43. 51	54. 58. 6	53. 12. 21
10		44. 24. 11	42. 38. 46	40. 53. 30	39. 8. 24
11		30. 26. 16			
11	α Aquilæ.	82. 36. 22	80. 58. 32	79. 20. 52	77. 43. 22
12		69. 39. 7	68. 3. 6	66. 27. 30	64. 52. 18
13		57. 3. 39	55. 31. 44	54. 0. 31	52. 30. 1
14	β Capri	41. 45. 5	40. 1. 8	38. 17. 27	36. 34. 2
15	corni.	28. 1. 4	26. 19. 19	24. 37. 52	22. 56. 42
16	α Pegaſi.	63. 55. 29	62. 21. 15	60. 47. 29	59. 14. 12
17		51. 35. 17	50. 5. 5	48. 35. 31	47. 6. 35
18		39. 52. 29	38. 28. 6	37. 4. 36	35. 42. 4
19	α Arietis.	69. 22. 22	67. 52. 0	66. 21. 54	64. 52. 4
20		57. 26. 48	55. 58. 30	54. 30. 27	53. 2. 38
21		45. 47. 19	44. 20. 58	42. 54. 54	41. 29. 6
22		34. 24. 43			
19	The Sun.				120. 4. 3
20		113. 6. 2	111. 42. 58	110. 20. 3	108. 57. 18
21		102. 5. 44	100. 43. 46	99. 21. 54	98. 0. 6
22		91. 12. 13	89. 50. 46	88. 29. 20	87. 7. 54
23		80. 20. 40	78. 59. 6	77. 37. 29	76. 15. 47
24		69. 26. 7	68. 3. 53	66. 41. 30	65. 19. 0
25		58. 24. 10	57. 0. 41	55. 37. 1	54. 13. 9
26		47. 10. 51	45. 45. 45	44. 20. 26	42. 54. 53

Diſtances of ☽'s Center from ☉, and from Stars weſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
4			38. 54. 1	40. 27. 50	42. 1. 52
5		49. 55. 4	51. 30. 15	53. 5. 36	54. 41. 8
6		62. 41. 16	64. 17. 45	65. 54. 23	67. 31. 9
7	The Sun.	75. 37. 15	77. 14. 53	78. 52. 38	80. 30. 31
8		88. 41. 53	90. 20. 31	91. 59. 13	93. 38. 4
9		101. 53. 42	103. 33. 4	105. 12. 31	106. 52. 2
10		115. 10. 36	116. 50. 27	118. 30. 20	120. 10. 14
8		20. 28. 3	22. 11. 35	23. 55. 6	25. 39. 2
9		34. 23. 37	36. 9. 14	37. 55. 0	39. 40. 57
10	Regulus.	48. 32. 44	50. 19. 24	52. 6. 8	53. 52. 56
11		62. 47. 37	64. 34. 40	66. 21. 42	68. 8. 45
12		77. 3. 33			
12		23. 18. 59	25. 6. 0	26. 52. 58	28. 39. 53
13		37. 32. 59	39. 19. 14	41. 5. 20	42. 51. 16
14	Spica ♍	51. 38. 29	53. 23. 19	55. 7. 55	56. 52. 18
15		65. 30. 32	67. 13. 23	68. 55. 57	70. 38. 12
16		79. 5. 24			
16		34. 13. 10	35. 50. 58	37. 28. 38	39. 6. 10
17		47. 11. 9	48. 47. 30	50. 23. 37	51. 59. 30
18	Antares.	59. 55. 17	61. 29. 38	63. 3. 42	64. 37. 31
19		72. 22. 40			
19		17. 31. 23	19. 4. 34	20. 37. 29	22. 10. 9
20	β Capri-	29. 49. 53	31. 21. 9	32. 52. 14	34. 23. 7
21	corni.	41. 54. 55			
21		49. 15. 5	50. 30. 57	51. 47. 14	53. 3. 55
22		59. 32. 16	60. 50. 44	62. 9. 26	63. 28. 21
23	α Aquilæ.	70. 5. 56	71. 25. 58	72. 46. 10	74. 6. 32
24		80. 50. 41	82. 11. 57	83. 33. 21	84. 54. 53
25		61. 47. 50	63. 6. 59	64. 26. 34	65. 46. 33
26	Fomal-	72. 32. 25	73. 54. 41	75. 17. 16	76. 40. 13
27	haut.	83. 39. 46			
27		66. 54. 49	68. 24. 15	69. 54. 2	71. 24. 9
28	α Pegaſi.	78. 59. 44	80. 31. 50	82. 4. 15	83. 37. 0
29		47. 50. 3	49. 25. 32	51. 1. 27	52. 37. 46
30	α Arietis.	60. 45. 12			

Distances of ☽'s Center from ☉, and from Stars west of her.

Days.	Stars Names.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
4	The Sun.	43. 36. 7	45. 10. 34	46. 45. 13	48. 20. 3
5		56. 16. 50	57. 52. 42	59. 28. 44	61. 4. 55
6		69. 8. 5	70. 45. 10	72. 22. 23	73. 59. 45
7		82. 8. 32	83. 46. 42	85. 24. 58	87. 3. 22
8		95. 16. 59	96. 56. 2	98. 35. 10	100. 14. 23
9		108. 31. 37	110. 11. 17	111. 51. 0	113. 30. 47
8	Regulus.	27. 23. 20	29. 7. 59	30. 52. 56	32. 38. 8
9		41. 27. 4	43. 13. 19	44. 59. 40	46. 46. 9
10		55. 39. 48	57. 26. 42	59. 13. 38	61. 0. 37
11		69. 55. 47	71. 42. 48	73. 29. 46	75. 16. 41
12	Spica ♍	30. 26. 42	32. 13. 27	34. 0. 4	35. 46. 35
13		44. 37. 4	46. 22. 42	48. 8. 9	49. 53. 25
14		58. 36. 27	60. 20. 21	62. 4. 0	63. 47. 24
15		72. 20. 15	74. 1. 57	75. 43. 23	77. 24. 32
16	Antares.	40. 43. 32	42. 20. 44	43. 57. 44	45. 34. 33
17		53. 35. 9	55. 10. 34	56. 45. 44	58. 20. 38
18		66. 11. 3	67. 44. 21	69. 17. 22	70. 50. 9
19	ρ Capricorni.	23. 42. 34	25. 14. 44	26. 46. 41	28. 18. 24
20		35. 53. 49	37. 24. 20	38. 54. 41	40. 24. 53
21	ε Aquilæ.	54. 20. 57	55. 38. 20	56. 56. 1	58. 14. 0
22		64. 47. 29	66. 6. 49	67. 26. 20	68. 46. 3
23		75. 27. 3	76. 47. 44	78. 8. 34	79. 29. 33
24		86. 16. 33			
24	Fomalhaut.	56. 35. 44	57. 53. 4	59. 10. 52	60. 29. 7
25		67. 6. 58	68. 27. 46	69. 48. 57	71. 10. 30
26		78. 3. 29	79. 27. 5	80. 51. 0	82. 15. 14
27	ε Pegasi.	72. 54. 36	74. 25. 24	75. 56. 30	77. 27. 58
28		85. 10. 4			
28	ε Arietis.	41. 32. 46	43. 6. 22	44. 40. 27	46. 15. 1
29		54. 14. 31	55. 51. 39	57. 29. 8	59. 6. 59

Configurations of the SATELLITES of JUPITER at 3 o'th' Clock in the Morning.

Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	W.	
2	Th.	Visitation of V. Mary.
3	F.	
4	Sa.	Transl. of St. Martin.
5	*Su.*	*3d Sunday after Trinity.*
6	M.	In 3 weeks of H. Tr. 4 ret.
7	Tu	Cambr. Commencement.
8	W.	Term ends.
9	Th.	
10	F.	Cambridge Term ends.
11	Sa.	
12	*Su.*	*4th Sunday after Trinity.*
13	M.	Oxford Act.
14	Tu.	
15	W.	Swithin.
16	Th.	
17	F.	
18	Sa.	Oxford Term ends.
19	*Su.*	*5th Sunday after Trinity.*
20	M.	Margaret.
21	Tu.	
22	W.	*Q. of Denmark born* 1751.
23	Th.	[Magdalen
24	F.	
25	Sa.	*St. James.*
26	*Su.*	*6th Sunday after Trinity.*
27	M.	[S. Anne.
28	Tu.	
29	W.	
30	Th.	
31	F.	

Phases of the Moon.

	D.	H.	M.
First Quarter —	7.	6.	50
Full Moon —	14.	8.	10
Last Quarter —	22.	8.	3
New Moon —	29.	19.	22

Other Phenomena.

D.

1. ♄ ☌ ☊ diff. Lat. 62′.
2. ☾ 1 ad ☌ ☋ 14ʰ. 59′.
   ☾ 2 ad ☌ ☋ 15ʰ. 54′.
   ☾ ☌ ♒ 20ʰ. 12′.
3. ☿ ☌ ☿ diff. Lat. 53′.
   ☾ ☍ ☊ 9ʰ. 56′.
   ☾ ☍ ♑ 18ʰ. 29ʰ.
4. ♂ ☌ ♊ diff. Lat. 59′.
5. ☾ ☍ ☊ 13ʰ. 54′.
6. ♃ ☍ ☊ diff. Lat. 41′.
8. ☾ ☌ ♍ 13ʰ. 6′.
9. ☾ ☌ ♎ 3ʰ. 3′.
   ☾ 4 ad ♉ ☌ 20ʰ. 11′.
10. ☾ ☍ ♎ 4ʰ. 35′.
14. ☾ ☍ ♓ 23ʰ. 9′.
17. ☾ ☍ ♏ 6ʰ. 48′.
20. ☾ ☌ ♈ 16ʰ. 39′.
    ☾ ☍ ♈ 23ʰ. 31′.
21. ☾ ♉ ♈ 4ʰ. 16′.
    ☉ enters ♌ at 22ʰ. 13′.
    ☿ Stationary.
25. ☾ 1 ad ☌ ♉ 1ʰ. 42′.
    ☾ 2 ad ☌ ♉ 2ʰ. 11′.
    ☾ ☍ ♉ 4ʰ. 44′.
30. ☾ ☍ ☊ 17ʰ. 53′.
31. ☾ ☍ ☊ 2ʰ. 14′.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. North.	Equat. of Time. Add.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	W.	3. 10. 2. 21	6. 43. 41,6	23. 5. 10	3. 24,6	11,4
2	Th.	3. 10. 59. 34	6. 47. 49,6	23. 0. 39	3. 36,0	11,1
3	F.	3. 11. 56. 48	6. 51. 57,3	22. 55. 44	3. 47,1	10,7
4	Sa.	3. 12. 54. 1	6. 56. 4. 7	22. 50. 24	3. 57,8	10,5
5	*Su.*	3. 13. 51. 15	7. 0. 11,7	22. 44. 41	4. 8,3	10,1
6	M.	3. 14. 48. 27	7. 4. 18,3	22. 38. 34	4. 18,4	9,6
7	Tu.	3. 15. 45. 40	7. 8. 24,6	22. 32. 4	4. 28,0	9,3
8	W.	3. 16. 42. 53	7. 12. 30,5	22. 25. 10	4. 37,3	8,9
9	Th.	3. 17. 40. 6	7. 16. 35,9	22. 17. 54	4. 46,2	8,4
10	F.	3. 18. 37. 18	7. 20. 40,9	22. 10. 14	4. 54,6	7,9
11	Sa.	3. 19. 34. 31	7. 24. 45,4	22. 2. 11	5. 2,5	7,5
12	*Su.*	3. 20. 31. 43	7. 28. 49,5	21. 53. 46	5. 10,0	7,0
13	M.	3. 21. 28. 56	7. 32. 53,1	21. 44. 58	5. 17,0	6,6
14	Tu.	3. 22. 26. 9	7. 36. 56,2	21. 35. 48	5. 23,6	6,0
15	W.	3. 23. 23. 22	7. 40. 58,8	21. 26. 16	5. 29,6	5,5
16	Th.	3. 24. 20. 36	7. 45. 0,9	21. 16. 22	5. 35,1	5,0
17	F.	3. 25. 17. 51	7. 49. 2,4	21. 6. 6	5. 40,1	4,5
18	Sa.	3. 26. 15. 6	7. 53. 3,5	20. 55. 29	5. 44,6	4,0
19	*Su.*	3. 27. 12. 22	7. 57. 4,0	20. 44. 30	5. 48,6	3,5
20	M.	3. 28. 9. 39	8. 1. 4,1	20. 33. 11	5. 52,1	2,9
21	Tu.	3. 29. 6. 56	8. 5. 3,5	20. 21. 30	5. 55,0	2,4
22	W.	4. 0. 4. 15	8. 9. 2,5	20. 9. 30	5. 57,4	1,8
23	Th.	4. 1. 1. 35	8. 13. 0,9	19. 57. 9	5. 59,2	1,3
24	F.	4. 1. 58. 56	8. 16. 58,7	19. 44. 27	6. 0,5	0,7
25	Sa.	4. 2. 56. 18	8. 20. 56,0	19. 31. 26	6. 1,2	0,1
26	*Su.*	4. 3. 53. 41	8. 24. 52,7	19. 18. 6	6. 1,3	0,4
27	M.	4. 4. 51. 5	8. 28. 48,8	19. 4. 26	6. 0,9	1,0
28	Tu.	4. 5. 48. 30	8. 32. 44,3	18. 50. 27	5. 59,9	1,6
29	W.	4. 6. 45. 56	8. 36. 39,3	18. 36. 10	5. 58,3	2,2
30	Th	4. 7. 43. 23	8. 40. 33,6	18. 21. 34	5. 56,1	2,9
31	F.	4. 8. 40. 51	8. 44. 27,3	18. 6. 40	5. 53,2	3,4

Days.	Semidiameter of the Sun.	Time of D° passing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Distance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	15. 46, 9	1. 8, 6	2. 23, 0	0. 007249	6. 25. 8
7	15. 47, 0	1. 8, 3	2. 23, 0	0. 007183	6. 24. 49
13	15. 47, 2	1. 8, 0	2. 23, 1	0. 007043	6. 24. 30
19	15. 47, 7	1. 7, 6	2. 23, 2	0. 006852	6. 24. 11
25	15. 48, 3	1. 7, 1	2. 23, 4	0. 006605	6. 23. 52

Eclipses of the SATELLITES of JUPITER.

I. Satellite. Immersions.		II. Satellite. Immersions.		III. Satellite.	
Days	H. M. S.	Days	H. M. S.	Days	H. M. S.
2	15* 1. 50	1	0. 7. 58	3	1. 57. 11 I
4	9. 29. 58	4	13*25. 50	3	5. 31. 41 E
6	3. 58. 4	8	2. 43. 50	10	5. 56. 14 I
7	22. 26. 13	11	16* 2. 4	17	9*55. 47 I
9	16. 54. 24	15	5. 20. 13	24	13*55. 57 I
11	11*22. 36	18	18. 38. 33	31	17. 56. 39 I
13	5. 50. 53	22	7. 56. 59		
15	0. 19. 10	25	21. 15. 31	IV. Satellite.	
16	18. 47. 28	29	10*34. 14		
18	13*15. 48			10	18. 36. 3 I
20	7. 44. 14			10	23. 18. 23 E
22	2. 12. 38			27	12*47. 48 I
23	20. 41. 9			27	17. 28. 32 E
25	15* 9. 37				
27	9*38. 11				
29	4. 6. 43				
30	22. 35. 22				

Days.	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Paſſ. over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
	MERCURY. Sup. ☌ 14ᵈ. 14ʰ.					
1	0. 29. 41	1. 57 S	2. 24. 54	0. 32 S	22. 50 N	22. 54
7	2. 6. 2	2. 26 N	3. 6. 51	0. 35 N	23. 53	23 22
13	3. 13. 36	5. 55	3. 19. 36	1. 24	23. 25	23. 53
19	4. 17. 43	6. 59	4. 2. 17	1. 46	21. 24	0. 23
25	5. 16. 17	6. 2	4. 14. 11	1. 43	18. 11	0. 48
	VENUS.					
1	8. 13. 36	0. 3 N	4. 21. 27	0. 5 N	14. 27 N	2. 52
7	8. 23. 7	0. 30 S	4. 24. 44	0. 49 S	12. 31	2. 38
13	9. 2. 37	1. 3	4. 27. 7	1. 53	10. 43	2. 21
19	9. 12. 6	1. 34	4. 28. 22	3. 7	9. 8	2. 9
25	9. 21. 35	2. 2	4. 28. 20	4. 26	7. 54	1. 35
	MARS.					
1	6. 15. 50	0. 59 S	1. 19. 31	0. 46 S	16. 53 N	20. 24
7	0. 19. 27	0. 53	1. 23. 46	0. 42	18. 3	20. 17
13	0. 23. 2	0. 47	1. 27. 58	0. 38	19. 7	20. 9
19	0. 26. 35	0. 41	2. 2. 7	0. 34	20. 4	20. 2
25	1. 0. 6	0. 34	2. 6. 14	0. 29	20. 54	19. 56
	JUPITER.					
1	10. 23. 17	0. 56 S	11. 2. 31	1. 5 S	11. 35 S	15. 33
7	10. 23. 49	0. 56	11. 2. 16	1. 6	11. 42	15. 8
13	10. 24. 21	0. 57	11. 1. 54	1. 8	11. 52	14. 42
19	10. 24. 53	0. 57	11. 1. 25	1. 9	12. 3	14. 16
25	10. 25. 25	0. 58	11. 0. 52	1. 11	12. 17	13. 50
	SATURN.					
1	5. 1. 12	1. 36 N	4. 26. 38	1. 30 N	14. 3 N	3. 13
7	5. 1. 25	1. 36	4. 27. 15	1. 29	13. 50	2. 51
13	5. 1. 38	1. 37	4. 27. 54	1. 29	13. 36	2. 29
19	5. 1. 51	1. 37	4. 28. 34	1. 29	13. 22	2. 8
25	5. 2. 3	1. 38	4. 29. 16	1. 29	13. 8	1. 46

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
1	W.	3. 17. 17. 43	3. 24. 12. 5	4. 58. 14 S	5. 1. 27 S
2	Th.	4. 1. 9. 52	4. 8. 10. 34	5. 0. 12	4. 54. 26
3	F.	4. 15. 13. 34	4. 22. 18. 17	4. 44. 9	4. 29. 28
4	Sa.	4. 29. 24. 10	5. 6. 30. 52	4. 10. 34	3. 47. 45
5	*Su.*	5. 13. 37. 1	5. 20. 44. 24	3. 21. 21	2. 51. 50
6	M.	5. 27. 50. 39	6. 4. 56. 12	2. 19. 38	1. 45. 18
7	Tu.	6. 12. 0. 50	6. 19. 4. 31	1. 9. 27 S	0. 32. 32 S
8	W.	6. 26. 6. 57	7. 3. 8. 16	0. 4. 42 N	0. 41. 48 N
9	Th.	7. 10. 8. 11	7. 17. 6. 41	1. 18. 6	1. 53. 7
10	F.	7. 24. 3. 36	8. 0. 58. 52	2. 26. 15	2. 57. 4
11	Sa.	8. 7. 52. 5	8. 14. 43. 21	3. 25. 5	3. 49. 59
12	*Su.*	8. 21. 3. 5	8. 28. 18. 19	4. 11. 27	4. 29. 8
13	M.	9. 5. 1. 33	9. 11. 41. 33	4. 42. 59	4. 52. 49
14	Tu.	9. 18. 18. 4	9. 24. 50. 54	4. 58. 35	5. 0. 20
15	W.	10. 1. 19. 54	10. 7. 44. 54	4. 58. 12	4. 52. 16
16	Th.	10. 14. 5. 54	10. 20. 22. 53	4. 42. 45	4. 29. 52
17	F.	10. 26. 35. 54	11. 2. 45. 11	4. 13. 53	3. 55. 2
18	Sa.	11. 8. 50. 58	11. 14. 53. 33	3. 33. 36	3. 9. 59
19	*Su.*	11. 20. 53. 27	11. 26. 51. 2	2. 44. 23	2. 17. 3
20	M.	0. 2. 46. 48	0. 8. 41. 26	1. 48. 25	1. 18. 37
21	Tu.	0. 14. 35. 30	0. 20. 29. 39	0. 48. 3 N	0. 16. 55 N
22	W.	0. 26. 24. 31	1. 2. 20. 52	0. 14. 29 S	0. 45. 50 S
23	Th.	1. 8. 19. 19	1. 14. 20. 33	1. 16. 54	1. 47. 20
24	F.	1. 20. 25. 21	1. 26. 34. 16	2. 16. 48	2. 45. 4
25	Sa.	2. 2. 47. 45	2. 9. 6. 26	3. 11. 37	3. 36. 13
26	*Su.*	2. 15. 30. 50	2. 22. 1. 4	3. 58. 27	4. 17. 59
27	M.	2. 28. 37. 28	3. 5. 20. 6	4. 34. 18	4. 47. 8
28	Tu.	3. 12. 8. 54	3. 19. 3. 31	4. 56. 5	5. 0. 52
29	W.	3. 26. 3. 45	4. 3. 8. 54	5. 1. 11	4. 56. 56
30	Th.	4. 10. 18. 20	4. 17. 31. 24	4. 47. 58	4. 34. 23
31	F.	4. 24. 47. 4	5. 2. 4. 33	4. 16. 14	3. 53. 50

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſſage over Merid.	☽'s Right Aſcen. at Noon.	☽'s Right Aſc. at Midn.	☽'s Declinat. at Noon.	☽'s Declin. at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	W.	2	0. 30	108. 5	115. 11	17. 25 N	16. 21 N
2	Th.	3	1. 24	122. 16	129. 18	15. 2	13. 30
3	F.	4	2. 18	136. 16	143. 11	11. 46	9. 51
4	Sa.	5	3. 11	150. 3	156. 52	7. 47	5. 36
5	*Su.*	6	4. 3	163. 38	170. 22	3. 21 N	1. 2 N
6	M.	7	4. 54	177. 6	183. 50	1. 17 S	3. 35 S
7	Tu.	8	5. 46	190. 35	197. 23	5. 49	7. 59
8	W.	9	6. 39	204. 15	211. 9	10. 1	11. 55
9	Th.	10	7. 32	218. 8	225. 12	13. 38	15. 9
10	F.	11	8. 27	232. 18	239. 28	16. 26	17. 29
11	Sa.	12	9. 23	246. 40	253. 52	18. 16	18. 47
12	*Su.*	13	10. 18	261. 4	268. 13	19. 1	18. 58
13	M.	14	11. 12	275. 17	282. 16	18. 39	18. 5
14	Tu.	15	12. 4	289. 7	295. 51	17. 17	16. 15
15	W.	16	12. 54	302. 26	308. 53	15. 2	13. 39
16	Th.	17	13. 41	315. 11	321. 20	12. 6	10. 27
17	F.	18	14. 26	327. 22	333. 18	8. 41	6. 51
18	Sa.	19	15. 10	339. 7	344. 52	4. 58	3. 2 S
19	*Su.*	20	15. 52	350. 34	356. 12	1. 6 S	0. 50 N
20	M.	21	16. 35	1. 50	7. 28	2. 46 N	4. 39
21	Tu.	22	17. 18	13. 7	18. 49	6. 30	8. 17
22	W.	23	18. 2	24. 35	30. 25	9. 59	11. 35
23	Th.	24	18. 48	36. 22	42. 26	13. 5	14. 28
24	F.	25	19. 36	48. 37	54. 56	15. 41	16. 44
25	Sa.	26	20. 27	61. 23	67. 59	17. 37	18. 17
26	*Su.*	27	21. 20	74. 43	81. 35	18. 44	18. 56
27	M.	28	22. 14	88. 34	95. 37	18. 53	18. 35
28	Tu.	29	23. 10	102. 44	109. 54	18. 0	17. 9
29	W.	1	♂	117. 5	124. 16	16. 2	14. 40
30	Th.	2	0. 5	131. 26	138. 33	13. 3	11. 14
31	F.	3	1. 0	145. 38	152. 40	9. 15	7. 6

Days of the Month.	Days of the Week.	Semidr. ☽ at Noon.	Semidr. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	W.	15. 52	15. 56	58. 15	58. 31	4900	4880
2	Th.	16. 1	16. 4	58. 45	58. 57	4863	4848
3	F.	16. 7	16. 9	59. 8	59. 16	4834	4824
4	Sa.	16. 11	16. 12	59. 23	59. 27	4816	4811
5	*Su.*	16. 13	16. 13	59. 30	59. 31	4808	4806
6	M.	16. 13	16. 13	59. 31	59. 30	4806	4808
7	Tu.	16. 12	16. 11	59. 27	59. 23	4811	4816
8	W.	16. 10	16. 8	59. 18	59. 12	4822	4830
9	Th.	16. 6	16. 3	59. 4	58. 56	4839	4849
10	F.	16. 1	15. 58	58. 47	58. 37	4860	4872
11	Sa.	15. 55	15. 52	58. 26	58. 14	4886	4901
12	*Su.*	15. 48	15. 44	58. 0	57. 46	4918	4936
13	M.	15. 40	15. 36	57. 31	57. 15	4955	4975
14	Tu.	15. 32	15. 27	56. 59	56. 42	4995	5017
15	W.	15. 22	15. 18	56. 25	56. 8	5038	5060
16	Th.	15. 13	15. 9	55. 52	55. 36	5081	5102
17	F.	15. 5	15. 1	55. 21	55. 8	5122	5138
18	Sa.	14. 58	14. 55	54. 55	54. 45	5155	5169
19	*Su.*	14. 53	14. 51	54. 36	54. 29	5181	5190
20	M.	14. 50	14. 49	54. 25	54. 23	5195	5198
21	Tu.	14. 49	14. 50	54. 23	54. 26	5198	5194
22	W.	14. 51	14. 53	54. 31	54. 39	5187	5177
23	Th.	14. 56	15. 0	54. 49	55. 2	5163	5146
24	F.	15. 4	15. 9	55. 17	55. 35	5127	5103
25	Sa.	15. 14	15. 20	55. 55	56. 16	5077	5050
26	*Su.*	15. 26	15. 33	56. 39	57. 3	5021	4990
27	M.	15. 40	15. 46	57. 28	57. 52	4958	4928
28	Tu.	15. 53	15. 59	58. 16	58. 38	4898	4871
29	W	16. 5	16. 10	59. 0	59. 19	4844	4821
30	Th.	16. 14	16. 18	59. 36	59. 51	4800	4782
31	F.	16. 22	16. 23	60. 2	60. 9	4769	4760

Diſtances of ☽'s Center from Stars, and from ☉ eaſt of her.

Days	Stars Names.	Noon. D. M. S.	3 Hours. D. M. S.	6 Hours. D. M. S.	9 Hours. D. M. S.
2		79. 22. 25	77. 37. 55	75. 53. 16	74. 8. 26
3		65. 22. 0	63. 36. 19	61. 50. 31	60. 4. 37
4	Spica ♍	51. 13. 47	49. 27. 22	47. 40. 54	45. 54. 23
5		37. 1. 26	35. 14. 47	33. 28. 8	31. 41. 30
6		22. 48. 45	21. 2. 22	19. 16. 4	17. 29. 51
7		54. 36. 16	52. 51. 24	51. 6. 41	49. 22. 7
8	Antares.	40. 41. 54	38. 58. 30	37. 15. 22	35. 32. 31
9		27. 4. 24			
9		79. 17. 14	77. 41. 49	76. 6. 38	74. 31. 41
10	α Aquilæ.	66. 41. 21	65. 8. 18	63. 35. 43	62. 3. 35
11		54. 31. 2	53. 2. 26	51. 34. 36	50. 7. 32
12	ρ Capri	39. 13. 31	37. 31. 52	35. 50. 25	34. 9. 9
13	corni.	25. 45. 57	24. 5. 58	22. 26. 11	20. 46. 38
14		61. 59. 27	60. 26. 35	58. 54. 7	57. 22. 4
15		49. 48. 35	48. 19. 26	46. 50. 51	45. 22. 53
16	ε Pegaſi.	38. 13. 34	36. 50. 12	35. 27. 49	34. 6. 31
17		27. 40. 22			
17		67. 30. 35	66. 0. 1	64. 29. 43	62. 59. 40
18	α Arietis.	55. 33. 15	54. 4. 46	52. 36. 32	51. 8. 35
19		43. 52. 50			
19		76. 4. 21	74. 34. 39	73. 5. 5	71. 35. 39
20	Aldeba-	64. 9. 54	62. 40. 58	61. 12. 5	59. 43. 15
21	ran.	52. 19. 27	50. 50. 43	49. 21. 57	47. 53. 9
22		40. 28. 34	38. 59. 27	37. 30. 13	36. 0. 54
20		115. 22. 2	114. 0. 36	112. 39. 13	111. 17. 52
21		104. 31. 21	103. 10. 2	101. 48. 42	100. 27. 20
22		93. 39. 44	92. 17. 59	90. 56. 7	89. 34. 9
23	The Sun.	82. 42. 23	81. 19. 35	79. 56. 36	78. 33. 26
24		71. 34. 30	70. 10. 1	68. 45. 18	67. 20. 20
25		60. 11. 37	58. 45. 2	57. 18. 9	55. 50. 58
26		48. 30. 11	47. 1. 5	45. 31. 41	44. 1. 57
31	Spica ♍	55. 50. 6	54. 1. 7	52. 12. 1	50. 22. 29

Diſtances of ☽'s Center from Stars, and from ☉ eaſt of her.

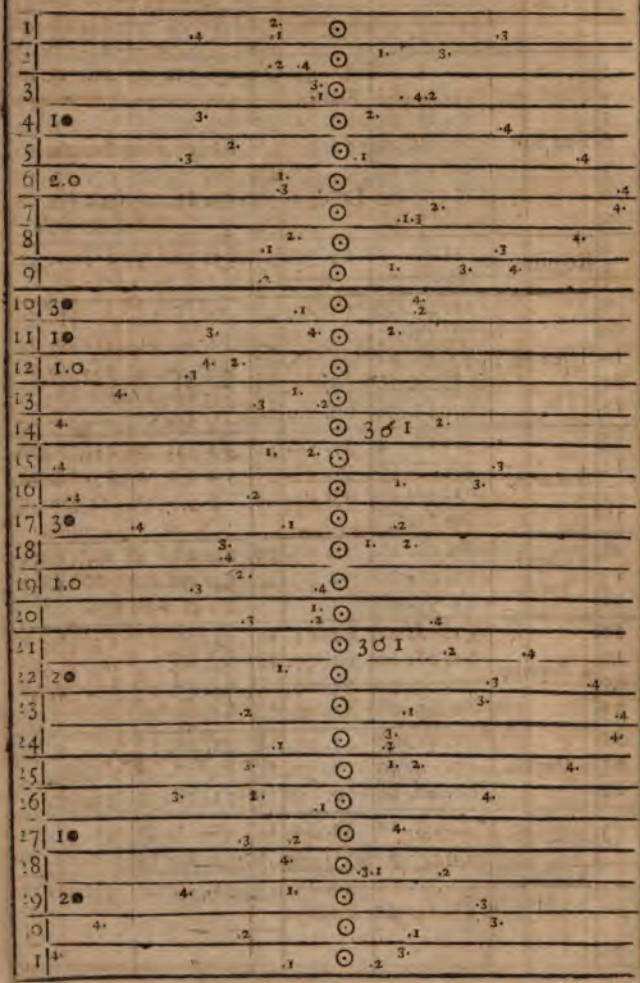
Days.	Stars Names.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
2		72. 23. 26	70. 38. 17	68. 52. 59	67. 7. 34
3		58. 18. 37	56. 32. 32	54. 46. 22	53. 0. 7
4	Spica ♍	44. 7. 49	42. 21. 15	40. 34. 40	38. 48. 4
5		29. 54. 53	28. 8. 17	26. 21. 43	24. 35. 12
6		15. 43. 44			
6		61. 36. 42	59. 51. 28	58. 6. 19	56. 21. 15
7	Antares.	47. 37. 41	45. 53. 27	44. 9. 24	42. 25. 32
8		33. 50. 0	32. 7. 52	30. 26. 11	28. 45. 0
9		72. 56. 59	71. 22. 34	69. 48. 29	68. 14. 45
10	ζ Aquilæ.	60. 31. 55	59. 0. 47	57. 30. 15	56. 0. 20
11		48. 41. 16			
11		46. 1. 47	44. 19. 29	42. 37. 19	40. 55. 20
12	β Capri-	32. 28. 5	30. 47. 14	29. 6. 35	27. 26. 10
13	corni.	19. 7. 18			
13		68. 14. 33	66. 40. 16	65. 6. 19	63. 32. 42
14		55. 50. 26	54. 19. 13	52. 48. 31	51. 18. 18
15	α Pegaſi.	43. 55. 33	42. 28. 54	41. 2. 59	39. 37. 51
16		32. 46. 24	31. 27. 35	30. 10. 13	28. 54. 26
17		61. 29. 52	60. 0. 20	58. 31. 3	57. 2. 1
18	α Arietis.	49. 40. 53	48. 13. 28	46. 46. 19	45. 19. 26
19		70. 6. 19	68. 37. 5	67. 7. 57	65. 38. 53
20	Aldeba-	58. 14. 26	56. 45. 40	55. 16. 55	53. 48. 11
21	ran.	46. 24. 20	44. 55. 29	43. 26. 34	41. 57. 36
22		34. 31. 28			
19		120. 40. 20	119. 26. 39	118. 5. 3	116. 43. 31
20		109. 56. 33	108. 35. 15	107. 13. 57	105. 52. 39
21		99. 5. 56	97. 44. 29	96. 22. 58	95. 1. 23
22	The Sun.	88. 12. 4	86. 49. 52	85. 27. 31	84. 5. 1
23		77. 10. 5	75. 46. 31	74. 22. 44	72. 58. 44
24		65. 55. 7	64. 29. 39	63. 3. 55	61. 37. 55
25		54. 23. 28	52. 55. 37	51. 27. 27	49. 58. 59
26		42. 31. 55	41. 1. 33	39. 30. 52	
31	Spica ♍	48. 33. 31	46. 44. 8	44. 54. 42	43. 5. 14

Diſtances of ☽'s Center from ☉, and from Stars weſt of her.

Days	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
4	The Sun.	46. 38. 48	48. 17. 27	49. 56. 11	51. 34. 59
5		59. 49. 53	61. 28. 59	63. 8. 6	64. 47. 15
6		73. 3. 3	74. 42. 11	76. 21. 18	78. 0. 22
7		86. 15. 13	87. 54. 4	89. 32. 51	91. 11. 34
8		99. 24. 4	101. 2. 22	102. 40. 34	104. 18. 41
9		112. 27. 43	114. 5. 12	115. 42. 34	117. 19. 49
7	Regulus.	45. 22. 23	47. 8. 6	48. 53. 46	50. 39. 25
8		59. 26. 57	61. 12. 18	62. 57. 36	64. 42. 51
9	Spica ♍	19. 44. 46	21. 29. 32	23. 14. 13	24. 58. 52
10		33. 40. 42	35. 24. 46	37. 8. 42	38. 52. 30
11		47. 29. 21	49. 12. 19	50. 55. 8	52. 37. 47
12		61. 8. 20	62. 49. 55	64. 31. 20	66. 12. 32
13		74. 35. 33			
13	Antares.	29. 52. 12	31. 28. 36	33. 5. 3	34. 41. 32
14		42. 43. 50	44. 20. 4	45. 56. 9	47. 32. 7
15		55. 29. 37	57. 4. 34	58. 39. 19	60. 13. 52
16		68. 3. 37	69. 36. 57	71. 10. 3	72. 42. 56
17	β Capri-corni.	25. 58. 41	27. 11. 12	28. 43. 30	30. 15. 36
18		37. 53. 5	39. 24. 1	40. 54. 47	42. 25. 23
19	α Aquilæ.	50. 14. 1	57. 32. 12	58. 50. 37	60. 9. 17
20		66. 45. 21	68. 5. 2	69. 24. 52	70. 44. 49
21		77. 26. 19	78. 46. 55	80. 7. 38	81. 28. 27
22		88. 13. 54			
22	α Pegaſi.	40. 27. 49	41. 48. 17	43. 9. 16	44. 30. 47
23		51. 25. 28	52. 49. 41	54. 14. 17	55. 39. 17
24		62. 49. 56	64. 17. 10	65. 44. 45	67. 12. 41
25		74. 37. 35			
25	α Arietis.	31. 6. 48	32. 34. 49	34. 3. 36	35. 33. 7
26		43. 10. 37	44. 43. 52	46. 17. 38	47. 51. 56
27		55. 50. 57			
27	Aldeba-ran.	21. 56. 47	23. 36. 11	25. 16. 0	26. 56. 14
28		35. 23. 23	37. 5. 57	38. 48. 53	40. 32. 10

Diſtances of ☽'s Center from ☉, and from Stars weſt of her.

Days.	Stars Names.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
3		40. 5. 28	41. 43. 36	43. 21. 52	45. 0. 16
4		53. 13. 53	54. 52. 49	56. 31. 48	58. 10. 49
5		66. 26. 25	68. 5. 35	69. 44. 44	71. 23. 54
6	The Sun.	79. 39. 26	81. 18. 27	82. 57. 25	84. 36. 20
7		92. 50. 14	94. 28. 49	96. 7. 18	97. 45. 43
8		105. 56. 43	107. 34. 38	109. 12. 26	110. 50. 8
9		118. 56. 56	120. 33. 56		
7	Regulus.	52. 25. 1	54. 10. 34	55. 56. 5	57. 41. 32
8		66. 28. 2			
8		12. 45. 39	14. 30. 25	16. 15. 12	17. 59. 59
9		26. 43. 27	28. 27. 55	30. 12. 17	31. 56. 32
10	Spica ♍	40. 36. 11	42. 19. 42	44. 3. 3	45. 46. 16
11		54. 20. 16	56. 2. 33	57. 44. 39	59. 26. 35
12		67. 53. 34	69. 34. 23	71. 14. 59	72. 55. 23
13		36. 18. 4	37. 54. 35	39. 31. 3	41. 7. 28
14	Antares.	49. 7. 58	50. 43. 38	52. 19. 8	53. 54. 28
15		61. 48. 14	63. 22. 24	64. 56. 20	66. 30. 5
16		74. 15. 36			
16	β Capri-	19. 26. 27	20. 59. 50	22. 33. 0	24. 5. 57
17	corni.	31. 47. 29	33. 19. 10	34. 50. 40	36. 21. 58
18		43. 55. 48			
18		51. 4. 21	52. 21. 16	53. 38 32	54. 56. 8
19	α Aquilæ.	61. 28. 10	62. 47. 12	64. 6. 25	65. 25. 48
20		72. 4. 54	73. 25. 5	74. 45. 23	76. 5. 48
21		82. 49. 21	84. 10. 21	85. 31. 26	86. 52. 38
22		45. 52. 48	47. 15. 18	48. 38. 15	50. 1. 38
23	α Pegaſi.	57. 4. 40	58. 30. 25	59. 56. 33	61. 23. 4
24		68. 40. 59	70. 9. 37	71. 38. 36	73. 7. 55
25	α Arietis.	37. 3. 21	38. 34. 15	40. 5. 43	41. 37. 55
26		49. 26. 45	51. 2. 5	52. 37. 53	54. 14. 11
27	Aldeba-	28. 36. 52	30. 17. 55	31. 59. 21	33. 41. 10
28	ran.	42. 15. 48			

Configurations of the SATELLITES of JUPITER at ½ an Hour past 11 o' th' Clock in the Evening.

Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	Sa.	Lammas-day.
2	*Su.*	*7th Sunday after Trinity.*
3	M.	
4	Tu.	
5	W.	
6	Th.	Transfig. of our Lord.
7	F.	Name of Jesus.
8	Sa.	
9	*Su.*	*8th Sunday after Trinity.*
10	M.	S. Lawrence.
11	Tu.	Prs. of Brunswick born.
12	W.	*Pr. of Wales born* 1762.
13	Th.	
14	F.	
15	Sa.	
16	*Su.*	*9th Sunday after Trinity.*
17	M.	[*Pr. Frederick born.*
18	Tu.	
19	W.	
20	Th.	
21	F.	*Pr. Will. Henry born.*
22	Sa.	
23	*Su.*	*10th Sunday after Trinity.*
24	M.	*St. Bartholomew.*
25	Tu.	
26	W.	
27	Th.	
28	F.	S. Augustine. [Bapt.
29	Sa.	Beheading of St. John
30	*Su.*	*11th Sunday after Trinity.*
31	M.	

Phases of the Moon.

	D.	H.	M.
First Quarter —	5.	11.	55
Full Moon —	12.	20.	40
Last Quarter—	21.	0.	47
New Moon —	28.	3.	45

Other Phenomena.

D.

1. ☾ ☌ ☊ $20^h.\ 31'.$
4. ☿ ☍ ☊ diff. Lat. 39′.
   ☾ ☌ ♍ $18^h.\ 31'.$
5. ☉ ☌ ♉ diff. Lat. 55′.
6. ☾ 4 ad ☌ ♎ $1^h.\ 35'.$
   ☾ ☍ ♎ $10^h.\ 2'.$
11. ☾ ☍ ♒ $6^h.\ 16'.$
15. ☿ ☌ ☊ diff. Lat. 2′.
17. ☾ ☌ ♓ $0^h.\ 6'.$
    ☾ ☍ ♓ $6^h.\ 59'.$
    ☾ ☌ ♓ Im. $10^h.\ 56'.$
    * 9′½ N. of ☽'s cent.
    Em. $11^h.\ 50½'.$ * 9′½ N. of ☽'s center.
21. ☾ 1 ad ☌ ♉ $10^h.\ 11'.$
    ☾ 2 ad ☌ ♉ $10^h.\ 41'.$
    ☾ ☍ ♉ $13^h.\ 17'.$
22. ☉ enters ♍ at $4^h.\ 31'.$
26. ☾ 1 ad ☍ ♋ $9^h.\ 30'.$
    ☾ 2 ad ☍ ♋ $10^h.\ 24'.$
    ☾ ☌ ♋ $14^h.\ 36'.$
29. ☾ ☌ ☊ $5^h.\ 35'.$
30. ☾ ☿ $1^h.\ 50'.$

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. North.	Equat. of Time Add.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	Sa.	4. 9. 38. 19	8.48.20,5	17. 51. 28	5. 49, 8	4, 0
2	*Su.*	4. 10. 35. 49	8.52.13,0	17. 35. 59	5. 45, 8	4, 7
3	M.	4. 11. 33. 19	8.56. 4,9	17. 20. 13	5. 41, 1	5, 2
4	Tu.	4. 12. 30. 50	8.59.56,1	17. 4. 10	5. 35, 9	5, 9
5	W.	4. 13. 28. 22	9. 3.46,8	16. 47. 50	5. 30, 0	6, 5
6	Th.	4. 14. 25. 54	9. 7.36,8	16. 31. 14	5. 23, 5	7, 1
7	F.	4. 15. 23. 28	9.11.26,4	16. 14. 22	5. 16, 4	7, 8
8	Sa.	4. 16. 21. 2	9.15.15,1	15. 57. 14	5. 8, 6	8, 3
9	*Su.*	4. 17. 18. 36	9.19. 3,3	15. 39. 52	5. 0, 3	8, 9
10	M.	4. 18. 16. 12	9.22.50,9	15. 22. 14	4. 51, 4	9, 5
11	Tu.	4. 19. 13. 49	9.26.37,9	15. 4. 21	4. 41, 9	10, 0
12	W.	4. 20. 11. 27	9.30.24,5	14. 46. 14	4. 31, 9	10, 6
13	Th.	4. 21. 9. 6	9.34.10,3	14. 27. 53	4. 21, 3	11, 2
14	F.	4. 22. 6. 46	9.37.55,7	14. 9. 18	4. 10, 1	11, 6
15	Sa.	4. 23. 4. 28	9.41.40,6	13. 50. 30	3. 58, 5	12, 2
16	*Su.*	4. 24. 2. 11	9.45.24,9	13. 31. 28	3. 46, 3	12, 7
17	M.	4. 24. 59. 56	9.49. 8,7	13. 12. 13	3. 33, 6	13, 2
18	Tu.	4. 25. 57. 42	9.52.52,1	12. 52. 46	3. 20, 4	13, 6
19	W.	4. 26. 55. 30	9.56.34,9	12. 33. 6	3. 6, 8	14, 1
20	Th.	4. 27. 53. 20	10. 0.17,4	12. 13. 14	2. 52, 7	14, 6
21	F.	4. 28. 51. 12	10. 3.59,4	11. 53. 10	2. 38, 1	14, 9
22	Sa.	4. 29. 49. 5	10. 7.40,9	11. 32. 55	2. 23, 2	15, 3
23	*Su.*	5. 0. 47. 1	10.11.22,1	11. 12. 29	2. 7, 9	15, 8
24	M.	5. 1. 44. 58	10.15. 2,8	10. 51. 52	1. 52, 1	16, 2
25	Tu.	5. 2. 42. 58	10.18.43,2	10. 31. 4	1. 35, 9	16, 6
26	W.	5. 3. 40. 58	10.22.23,1	10. 10. 7	1. 19, 3	16, 9
27	Th.	5. 4. 39. 1	10.26. 2,7	9. 48. 59	1. 2, 4	17, 2
28	F.	5. 5. 37. 5	10.29.41,9	9. 27. 43	0. 45, 2	17, 7
29	Sa.	5. 6. 35. 12	10.33.20,9	9. 6. 16	0. 27, 5	18, 0
30	*Su.*	5. 7. 33. 19	10.36.59,3	8. 44. 42	0. 9, 5	18, 2
31	M.	5. 8. 31. 29	10.40.37,6	8. 22. 58	Sub. 8, 7	18, 6

Days.	Semidiameter of the Sun.	Time of D passing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Distance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	15. 49, 1	1. 6, 5	2. 23, 7	0. 006214	6. 23. 29
7	15. 50, 0	1. 5, 9	2. 23, 9	0. 005786	6. 23. 10
13	15. 51, 1	1. 5, 5	2. 24, 3	0. 005304	6. 22. 51
19	15. 52, 2	1. 5, 0	2. 24, 6	0. 004789	6. 22. 32
25	15. 53, 4	1. 4, 7	2. 25, 0	0. 004232	6. 22. 13

Eclipses of the SATELLITES of JUPITER.

I. Satellite. Immersions.		H. Satellite. Immersions.		III. Satellite.	
D.	H. M. S.	D.	H. M. S.	D.	H. M. S.
1	17. 4. 1	1	23. 53. 2	7	21. 58. 9 I
3	11*32. 43	5	13*11. 58	15	2. 0. 12 I
5	6. 1. 26	9	2. 30. 58	22	9*35. 20 E
7	0. 30. 14	12	15*50. 8	29	13. 38. 7 E
8	18. 59. 2	16	5. 9. 25		
10	13*27. 53		Emersions.	IV. Satellite.	
12	7. 56. 47	19	21. 17. 45		
14	2. 25. 42	23	10*36. 59	13	7. 2. 30 I
15	20. 54. 41	26	23. 56. 23	30	5. 58. 16 E
17	15*23. 42	30	13*15. 50		
	Emersions.				
19	12* 8. 11				
21	6. 37. 14				
23	1. 6. 23				
24	19. 35. 29				
26	14* 4. 41				
28	8*33. 51				
30	3. 3. 6				
31	21. 32. 18				

Days.	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Paſſage over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
			MERCURY. Gr. Elong. 25d.			
1	6. 13. 27	3. 45 N	4. 26. 48	1. 14 N	13. 46 N	1. 9
7	7. 3. 10	1. 32	5. 6. 36	0. 34	9. 38	1. 23
13	7. 20. 54	0. 37 S	5. 15. 26	0. 15 S	5. 30	1. 32
19	8. 7. 37	2. 36	5. 23. 15	1. 11	1. 36	1. 37
25	8. 24. 7	4. 21	5. 29. 53	2. 8	1. 56 S	1. 37
			VENUS. Inf. ☌ 12d. 6h.			
1	10. 2. 39	2. 31 S	4. 26. 31	5. 59 S	7. 3 N	0. 58
7	10. 12. 8	2. 51	4. 23. 36	7. 8	6. 56	0. 22
13	10. 21. 37	3. 7	4. 19. 58	7. 51	7. 19	23. 39
19	11. 1. 7	3. 18	4. 16. 25	8. 11	8. 7	23. 4
25	11. 10. 38	3. 23	4. 13. 43	7. 57	9. 6	22. 33
			MARS.			
1	1. 4. 10	0. 27 S	2. 10. 57	0. 23 S	21. 44 N	19. 48
7	1. 7. 37	0. 20	2. 14. 56	0. 18	22. 19	19. 42
13	1. 11. 2	0. 14	2. 18. 51	0. 12	22. 48	19. 37
19	1. 14. 24	0. 8	2. 22. 42	0. 6	23. 10	19. 31
25	1. 17. 46	0. 1	2. 26. 30	0. 1	23. 24	19. 25
			JUPITER. ☍ 19d. 20h.			
1	10. 26. 3	0. 58 S	11. 0. 6	1. 12 S	12. 34 S	13. 20
7	10. 26. 35	0. 59	10. 29. 23	1. 13	12. 50	12. 54
13	10. 27. 7	0. 59	10. 28. 37	1. 14	13. 7	12. 28
19	10. 27. 39	1. 0	10. 27. 50	1. 15	13. 25	12. 3
25	10. 28. 11	1. 0	10. 27. 3	1. 15	13. 41	11. 38
			SATURN. ☌ 25d. 11h.			
1	5. 2. 18	1. 38 N	5. 0. 6	1. 29 N	12. 50 N	1. 23
7	5. 2. 31	1. 39	5. 0. 51	1. 29	12. 34	1. 3
13	5. 2. 44	1. 39	5. 1. 36	1. 30	12. 19	0. 43
19	5. 2. 57	1. 40	5. 2. 21	1. 30	12. 3	0. 23
25	5. 3. 9	1. 40	5. 3. 7	1. 30	11. 47	0. 4

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
1	Sa.	5. 9. 22. 57	5. 16. 41. 21	3. 27. 27 S	2. 57. 43 S
2	*Su.*	5. 23. 59. 1	6. 1. 15. 22	2. 25. 3	1. 50. 4
3	M.	6. 8. 29. 38	6. 15. 41. 37	1. 13. 25 S	0. 35. 45 S
4	Tu.	6. 22. 50. 50	6. 29. 57. 2	0. 2. 14 N	0. 39. 58 N
5	W.	7. 7. 0. 8	7. 14. 0. 1	1. 16. 49	1. 52. 16
6	Th.	7. 20. 56. 46	7. 27. 50. 13	2. 25. 43	2. 56. 49
7	F.	8. 4. 40. 38	8. 11. 27. 51	3. 25. 5	3. 50. 15
8	Sa.	8. 18. 12. 1	8. 24. 53. 6	4. 11. 59	4. 30. 6
9	*Su.*	9. 1. 31. 10	9. 8. 6. 9	4. 44. 21	4. 54. 44
10	M.	9. 14. 38. 10	9. 21. 7. 2	5. 1. 10	5. 3. 39
11	Tu.	9. 27. 32. 48	10. 3. 55. 26	5. 2. 14	4. 57. 4
12	W.	10. 10. 14. 58	10. 16. 31. 19	4. 48. 14	4. 36. 0
13	Th.	10. 22. 44. 35	10. 28. 54. 50	4. 20. 32	4. 2. 5
14	F.	11. 5. 2. 2	11. 11. 6. 29	3. 40. 59	3. 17. 27
15	Sa.	11. 17. 8. 19	11. 23. 7. 51	2. 51. 51	2. 24. 28
16	*Su.*	11. 29. 5. 15	0. 5. 1. 2	1. 55. 36	1. 25. 33
17	M.	0. 10. 55. 30	0. 16. 49. 7	0. 54. 41 N	0. 23. 14 N
18	Tu.	0. 22. 42. 25	0. 28. 36. 1	0. 8. 28 S	0. 40. 6 S
19	W.	1. 4. 30. 24	1. 10. 26. 14	1. 11. 27	1. 42. 7
20	Th.	1. 16. 24. 13	1. 22. 24. 54	2. 11. 55	2. 40. 28
21	F.	1. 28. 29. 2	2. 4. 37. 16	3. 7. 30	3. 32. 40
22	Sa.	2. 10. 50. 6	2. 17. 8. 14	3. 55. 40	4. 16. 7
23	*Su.*	2. 23. 32. 9	3. 0. 2. 23	4. 33. 41	4. 48. 4
24	M.	3. 6. 39. 12	3. 13. 22. 54	4. 58. 50	5. 5. 44
25	Tu.	3. 20. 13. 32	3. 27. 11. 1	5. 8. 24	5. 6. 35
26	W.	4. 4. 15. 7	4. 11. 25. 29	5. 0. 7	4. 48. 51
27	Th.	4. 18. 41. 21	4. 26. 2. 2	4. 32. 49	4. 12. 8
28	F.	5. 3. 26. 37	5. 10. 54. 3	3. 47. 0	3. 17. 49
29	Sa.	5. 18. 23. 3	5. 25. 52. 44	2. 45. 4	2. 9. 25
30	*Su.*	6. 3. 21. 49	6. 10. 49. 20	1. 31. 36	0. 52. 13 S
31	M.	6. 18. 14. 21	6. 25. 36. 10	0. 12. 8 S	0. 27. 53 N

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſſage over Merid.	☽'s Right Aſcen. at Noon.	☽'s Right Aſc. at Midn.	☽'s Declination at Noon.	☽'s Declination at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	Sa.	4	1. 54	159. 37	166. 36	4. 51 N	2. 32 N
2	*Su.*	5	2. 48	173. 31	180. 25	0. 10 N	2. 11 S
3	M.	6	3. 41	187. 19	194. 14	4. 30 S	6. 44
4	Tu.	7	4 35	201. 9	208. 6	8. 52	10. 51
5	W.	8	5. 29	215. 5	222. 7	12. 39	14. 16
6	Th.	9	6. 23	229. 10	236. 16	15. 40	16. 50
7	F.	10	7. 18	243. 22	250. 28	17. 44	18. 23
8	Sa.	11	8. 13	257. 34	264. 37	18. 45	18. 52
9	*Su.*	12	9. 7	271. 36	278. 30	18. 43	18. 19
10	M.	13	9. 59	285. 19	292. 1	17. 40	16. 48
11	Tu.	14	10. 49	298. 36	305. 3	15. 44	14. 29
12	W.	15	11. 37	311. 22	317. 34	13. 4	11. 31
13	Th.	16	12. 23	323. 39	329. 38	9. 51	8. 5
14	F.	17	13. 7	335. 31	341. 19	6. 15	4. 22
15	Sa.	18	13. 51	347. 3	352. 44	2. 27 S	0. 31 S
16	*Su.*	19	14. 33	358. 24	4 2	1. 24 N	3. 18 N
17	M.	20	15. 16	9. 41	15. 21	5. 10	6. 58
18	Tu.	21	16. 0	21. 3	26. 49	8. 43	10. 22
19	W.	22	16. 45	32. 39	38. 34	11. 55	13. 21
20	Th.	23	17. 31	44. 35	50. 43	14. 39	15. 48
21	F.	24	18. 20	56. 58	63. 20	16. 48	17. 36
22	Sa.	25	19. 11	69. 50	76. 27	18. 12	18. 36
23	*Su.*	26	20. 4	83. 12	90. 3	18. 45	18. 40
24	M.	27	20. 59	96. 59	104. 0	18. 19	17. 43
25	Tu.	28	21. 54	111. 5	118. 13	16. 51	15. 44
26	W.	29	22. 50	125. 22	132. 32	14. 21	12. 44
27	Th.	30	23. 46	139. 41	146. 51	10. [illegible]	8. 54
28	F.	1	[illegible]	153. 59	161. 7	[illegible]	4. 26 N
29	Sa.	2	0. 41	168. 15	175. 22	[illegible] 4 N	0. 20 S
30	*Su.*	3	1. 37	182. 29	189. 36	2. 44 S	5. 5
31	M.	4	2. 32	196. 45	203. 54	7. 21	9. 29

Days of the Month.	Days of the Week.	Semidr. ☽ at Noon.	Semidr. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	Su.	16. 25	16. 25	60. 14	60. 16	4754	4752
2	Su.	16. 25	16. 24	60. 14	60. 10	4754	4759
3	M.	16. 22	16. 19	60. 3	59. 54	4768	4778
4	Tu.	16. 16	16. 13	59. 43	59. 30	4792	4808
5	W.	16. 9	16. 5	59. 17	59. 2	4823	4842
6	Th.	16. 1	15. 57	58. 47	58. 32	4860	4878
7	F.	15. 53	15. 48	58. 16	58. 0	4898	4918
8	Sa.	15. 44	15. 40	57. 44	57. 28	4938	4958
9	Su.	15. 35	15. 31	57. 13	56. 57	4977	4998
10	M.	15. 27	15. 23	56. 42	56. 27	5017	5036
11	Tu.	15. 19	15. 15	56. 12	55. 58	5055	5073
12	W.	15. 11	15. 8	55. 44	55. 31	5091	5108
13	Th.	15. 4	15. 1	55. 18	55. 6	5125	5141
14	F.	14. 58	14. 55	54. 55	54. 45	5155	5169
15	Sa.	14. 53	14. 51	54. 36	54. 28	5181	5191
16	Su.	14. 49	14. 48	54. 22	54. 18	5199	5205
17	M.	14. 47	14. 47	54. 15	54. 14	5209	5210
18	Tu.	14. 47	14. 48	54. 16	54. 20	5207	5202
19	W.	14. 50	14. 52	54. 26	54. 34	5194	5183
20	Th.	14. 55	14. 59	54. 45	54. 58	5169	5152
21	F.	15. 3	15. 8	55. 14	55. 33	5130	5106
22	Sa.	15. 14	15. 20	55. 53	56. 16	5080	5050
23	Su.	15. 26	15. 34	56. 40	57. 6	5019	4986
24	M.	15. 41	15. 49	57. 33	58. 1	4952	4917
25	Tu.	15. 56	16. 4	58. 29	58. 56	4882	4849
26	W.	16. 11	16. 17	59. 22	59. 46	4817	4788
27	Th.	16. 23	16. 28	60. 8	60. 27	4761	4739
28	F.	16. 32	16. 35	60. 42	60. 53	4721	4708
29	Sa.	16. 37	16. 38	60. 59	61. 2	4700	4697
30	Su.	16. 37	16. 36	61. 0	60. 54	4699	4707
31	M.	16. 33	16. 29	60. 44	60. 31	4718	4734

Diſtances of ☽'s Center from Stars, and from ☉ eaſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
1		41. 15. 41	39. 26. 8	37. 36. 36	35. 47. 4
2	Spica ♍	26. 40. 7	24. 50. 56	23. 1. 52	21. 12. 57
3		12. 11. 54			
3		58. 6. 19	56. 19. 13	54. 32. 21	52. 45. 42
4	Antares.	43. 56. 16	42. 11. 17	40. 26. 39	38. 42. 25
5		30. 7. 59			
5		82. 1. 31	80. 25. 27	78. 49. 41	77. 14. 12
6	α Aquilæ.	69. 22. 5	67. 48. 52	66. 16. 7	64. 43. 51
7		57. 10. 24	55. 41. 34	54. 13. 26	52. 46. 3
8	β Capri-	42. 32. 54	40. 52. 30	39. 12. 19	37. 32. 21
9	corni.	29. 15. 35	27. 36. 51	25. 58. 21	24. 20. 2
10		65. 25. 37	63. 53. 30	62. 21. 45	60. 50. 19
11	α Pegaſi.	53. 18. 40	51. 49. 34	50. 20. 55	48. 52. 45
12		41. 40. 14	40. 15. 41	38. 51. 54	37. 28. 56
13		30. 49. 37			
13		71. 17. 34	69. 46. 48	68. 16. 15	66. 45. 55
14	α Arietis.	59. 17. 34	57. 48. 33	56. 19. 47	54. 51. 14
15		47. 32. 8	46. 5. 5	44. 38. 20	43. 11. 53
16		36. 4. 47			
16		67. 50. 51	66. 21. 32	64. 52. 19	62. 23. 11
17	Aldeba-	55. 58. 39	54. 29. 55	53. 1. 13	51. 32. 34
18	ran.	44. 9. 33	42. 40. 56	41. 12. 19	39. 43. 39
19		32. 19. 47	30. 50. 50	29. 21. 49	27. 52. 41
20	Pollux.	64. 10. 24	62. 42. 41	61. 14. 52	59. 46. 57
21		52. 25. 46			
18				120. 32. 56	119. 11. 42
19		112. 24. 48	111. 3. 12	109. 41. 29	108. 19. 39
20		101. 28. 36	100. 5. 58	98. 43. 9	97. 20. 9
21	The Sun.	90. 22. 8	88. 57. 51	87. 33. 19	86. 8. 32
22		79. 0. 33	77. 34. 4	76. 7. 17	74. 40. 9
23		67. 19. 27	65. 50. 13	64. 20. 36	62. 50. 36
24		55. 14. 49	53. 42. 27	52. 9. 40	50. 36. 29
25		42. 44. 30	41. 8. 54	39. 32. 54	
30	Antares.	63. 11. 38	61. 20. 39	59. 29. 52	57. 39. 14
31		48. 29. 29	46. 40. 21	44. 51. 35	43. 3. 12

Diſtances of ☽'s Center from Stars, and from ☉ eaſt of her.

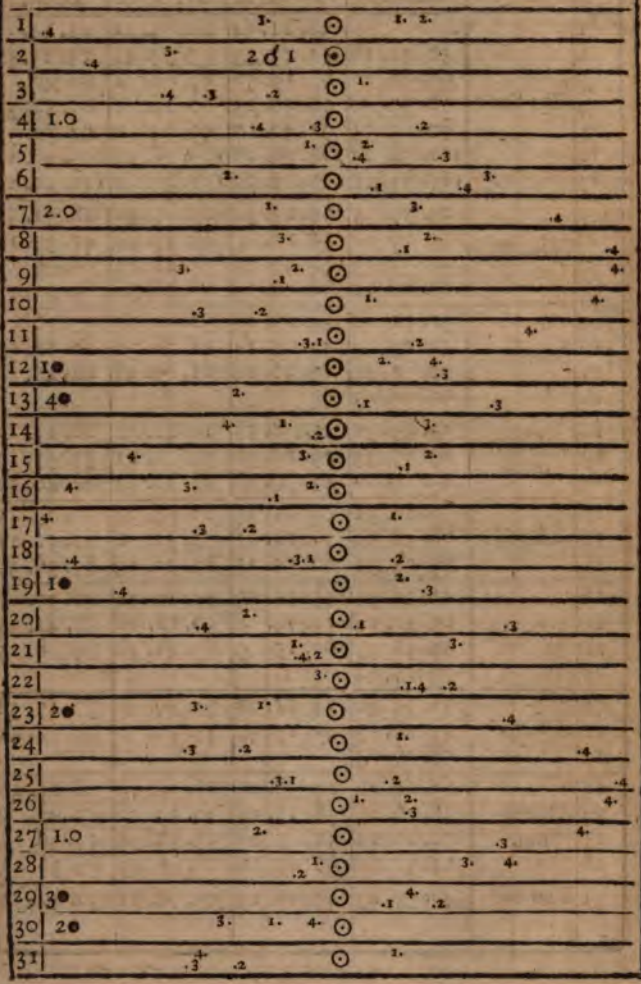
Days.	Stars Names.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	Spica ♍	33. 57. 34	32. 8. 6	30. 18. 42	28. 29. 22
2		19. 24. 14	17. 35. 44	15. 47. 30	13. 59. 33
3	Antares.	50. 59. 15	49. 13. 4	47. 27. 10	45. 41. 34
4		36. 58. 35	35. 15. 12	33. 32. 17	31. 49. 52
5		75. 39. 3	74. 4. 14	72. 29. 47	70. 55. 45
6	α Aquilæ.	63. 12. 3	61. 40. 45	60. 10. 2	58. 39. 55
7		51. 19. 26			
7		49. 16. 39	47. 35. 24	45. 54. 20	44. 13. 31
8	β Capricorni.	35. 52. 35	34. 13. 1	32. 33. 40	30. 54. 31
9		22. 41. 56			
9		71. 37. 8	70. 3. 48	68. 30. 46	66. 58. 3
10	α Pegaſi.	59. 19. 14	57. 48. 30	56. 18. 10	54. 48. 13
11		47. 25. 6	45. 57. 59	44 31. 26	43. 5. 30
12		36. 6. 54	34. 45. 51	33. 25. 54	32. 7. 7
13		65. 15. 48	63. 45. 54	62. 16. 14	60. 46. 47
14	α Arietis.	53. 22. 55	51. 54. 50	50. 27. 1	48. 59. 27
15		41. 45. 45	40. 19. 58	38. 54. 32	37. 29. 28
16		61. 54. 8	60. 25. 11	58. 56. 16	57. 27. 26
17	Aldebaran.	50. 3. 56	48. 35. 20	47. 6. 44	45. 38. 9
18		38. 14. 58	36. 46. 15	35. 17. 29	33. 48. 40
19		26. 23. 30			
19	Pollux.	70. 0. 26	68. 33. 4	67. 5. 35	65. 38. 3
20		58. 18. 56	56. 50. 50	55. 22. 35	53. 54. 15
18		117. 50. 28	116. 29. 9	115. 7. 46	113. 46. 19
19		106. 57. 43	105. 35. 39	104. 13. 27	102. 51. 6
20		95. 56. 59	94. 33. 36	93. 10. 0	91. 46. 11
21	The Sun.	84. 43. 29	83. 18. 10	81. 52. 35	80. 26. 43
22		73. 12. 42	71. 44. 56	70. 16. 47	68. 48. 19
23		61. 20. 14	59. 49. 28	58. 18. 19	56. 46. 46
24		49. 2. 54	47. 28. 54	45. 54. 30	44. 19. 42
29		70. 36. 33	68. 45. 13	66. 53. 55	65. 2. 43
30	Antares.	55. 48. 47	43. 58. 33	52. 8. 36	50. 18. 54
31		41. 15. 12	39. 27. 36	37. 40. 32	35. 54. 1

Distances of ☽'s Center from ☉, and from Stars west of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
2	The Sun.	43. 26. 26	45. 7. 57	46. 49. 26	48. 30. 53
3		56. 56. 50	58. 37. 43	60. 18. 29	61. 59. 7
4		70. 20. 0	71. 59. 39	73. 39. 7	75. 18. 24
5		83. 31. 52	85. 9. 56	86. 47. 48	88. 25. 27
6		96. 30. 31	98. 6. 50	99. 42. 57	101. 18. 49
7		109. 15. 2	110. 49. 36	112. 23. 55	113. 58. 2
6	Spica ♍	30. 35. 45	32. 19. 25	34. 2. 53	35. 46. 8
7		44. 19. 26	46. 1. 27	47. 43. 15	49. 24. 50
8		57. 49. 40	59. 29. 59	61. 10. 7	62. 50. 1
9		71. 6. 29			
9	Antares.	26. 34. 17	28. 8. 21	29. 42. 38	31. 17. 5
10		39. 10. 55	40. 45. 42	42. 20. 26	43. 55. 6
11		51. 47. 10	53. 21. 14	54. 55. 11	56. 29. 0
12		64. 16. 0	65. 48. 57	67. 21. 45	68. 54. 24
13	β Capricorni.	21. 47. 53	23. 20. 33	24. 53. 3	26. 25. 23
14		34. 4. 30	35. 35. 51	37. 7. 3	38. 38. 6
15		46. 11. 12			
15	α Aquilæ.	53. 4. 28	54. 22. 9	55. 40. 7	56. 58. 22
16		63. 33. 4	64. 52. 35	66. 12. 15	67. 32. 3
17		74. 12. 39	75. 33. 1	76. 53. 28	78. 13. 58
18		84. 57. 24			
18	α Pegasi.	37. 16. 44	38. 35. 11	39. 54. 12	41. 13. 47
19		47. 59. 0	49. 21. 18	50. 43. 59	52. 7. 1
20		59. 7. 14	60. 32. 12	61. 57. 29	63. 23. 4
21		70. 35. 33	72. 2. 57	73. 30. 41	74. 58. 42
22	α Arietis.	38. 46. 33	40. 16. 5	41. 46. 11	43. 16. 50
23		50. 58. 2	52. 31. 48	54. 6. 4	55. 40. 49
24	Aldebaran.	29. 54. 54	31. 34. 38	33. 14. 48	34. 55. 24
25		43. 24. 56	45. 8. 9	46. 51. 48	48. 35. 52
26		57. 22. 33	59. 9. 8	60. 56. 6	62. 43. 28
27		71. 45. 40			
31	The Sun.	39. 42. 54	41. 26. 25	43. 9. 44	44. 52. 50

Distances of ☽'s Center from ☉, and from Stars west of her.

Days	Stars Names.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
1			38. 21. 54	40. 3. 23	41. 44. 54
2		50. 12. 16	51. 53. 33	53. 34. 44	55. 15. 50
3		63. 39. 37	65. 19. 58	67. 0. 8	68. 40. 9
4	The Sun.	76. 57. 29	78. 36. 23	80. 15. 5	81. 53. 35
5		90. 2. 53	91. 40. 7	93. 17. 9	94. 53. 56
6		102. 54. 29	104. 29. 57	106. 5. 12	107. 40. 14
7		115. 31. 55	117. 5. 35	118. 39. 2	120. 12. 15
5		23. 39. 3	25. 23. 32	27. 7. 48	28. 51. 53
6	Spica ♍	37. 29. 12	39. 12. 4	40. 54. 44	42. 37. 11
7		51. 6. 13	52. 47. 24	54. 28. 22	56. 9. 7
8		64. 29. 42	66. 9. 13	67. 48. 30	69. 27. 36
9		32. 51. 42	34. 26. 26	36. 1. 13	37. 36. 3
10	Antares.	45. 29. 43	47. 4. 14	48. 38. 39	50. 12. 58
11		58. 2. 41	59. 36. 14	61. 9. 38	62. 42. 53
12		70. 26. 53			
12	β Capricorni.	15. 35. 31	17. 8. 52	18. 42. 2	20. 15. 3
13		27. 57. 33	29. 29. 32	31. 1. 21	32. 33. 0
14		40. 9. 0	41. 39. 46	43. 10. 23	44. 40. 52
15		58. 16. 52	59. 35. 37	60. 54. 34	62. 13. 43
16	α Aquilæ.	68. 51. 59	70. 12. 1	71. 32. 8	72. 52. 21
17		79. 34. 33	80. 55. 11	82. 15. 53	83. 36. 37
18		42. 33. 53	43. 54. 29	45. 15. 34	46. 37. 5
19	α Pegasi.	53. 30. 24	54. 54. 8	56. 18. 10	57. 42. 33
20		64. 48. 57	66. 15. 9	67. 41. 38	69. 8. 27
21		76. 27. 2			
21		32. 54. 40	34. 21. 40	35. 49. 20	37. 17. 38
22	α Arietis.	44. 48. 3	46. 19. 47	47. 52. 1	49. 24. 46
23		57. 16. 3			
23		23. 20. 22	24. 58. 20	26. 36. 45	28. 15. 36
24	Aldebaran.	36. 36. 26	38. 17. 54	39. 59. 49	41. 42. 9
25		50. 20. 22	52. 5. 18	53. 50. 38	55. 36. 23
26		64. 31. 12	66 19. 18	68. 7. 45	69. 56. 33
31	The Sun.	46. 35. 43	48. 18. 23	50. 0. 48	51. 42. 58

Configurations of the SATELLITES of JUPITER at 10 o' th' Clock in the Evening.

Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	Tu.	Giles.
2	W.	Lond. burnt, 1666, O.S.
3	Th.	
4	F.	
5	Sa.	
6	*Su.*	*12th Sunday after Trinity.*
7	M.	Enurchus.
8	Tu.	Nativity of V. Mary.
9	W.	
10	Th.	
11	F.	
12	Sa.	
13	*Su.*	*13th Sunday after Trinity.*
14	M.	Holy Crofs.
15	Tu.	
16	W.	
17	Th.	Lambert.
18	F.	
19	Sa.	
20	*Su.*	*14th Sunday after Trinity.*
21	M.	*St. Matthew.*
22	Tu.	*K. Geo.* III. *crown'd* 1761.
23	W.	
24	Th.	
25	F.	
26	Sa.	S. Cyprian.
27	*Su.*	*15th Sunday after Trinity.*
28	M.	
29	Tu.	*St. Mich. Pri. Char. Aug.*
30	W.	S. Jerome. [*born.*

Phafes of the Moon.

	D.	M.	H
First Quarter—	3.	19.	0
Full Moon —	11.	11.	54
Laft Quarter —	19.	16.	1
New Moon —	26.	12.	23

Other Phenomena.

1. ☾ λ ♍ $0^h.56'$.
2. ☿ Stationary.
   ☾ 4 ad ♌ ♎ $7^h.47'$.
   ☾ ν ♎ $11^h.45'$.
   ☾ θ ♎ $16^h.4'$.
3. ♂ μ ♊ diff. Lat. 59′.
6. ♆ ι ♒ diff. Lat. 48′.
7. ☾ β ♈ Im. $13^h.7'$. * 9′. N. of ☽'s c. Em. $14^h.0'\frac{1}{2}$. * 8′ N. of ☽'s cent.
8. ☿ Stationary.
9. ☿ κ ♋ diff. Lat. 55′.
   ☾ θ ♒ $20^h.52'$.
13. ☾ ♏ ♓ $6^h.56'$.
    ☾ ε ♓ $13^h.49'$.
    ☾ ζ ♓ $18^h.34'$.
17. ☾ 1 ad ♃ ♉ Im. $17^h.44'$. * 8′ N. of ☽'sc. Em. $18^h.48'\frac{1}{2}$. * 10′ N. of ☽'s c.
    ☾ 2 ad ♃ ♉ $18^h.5'$.
    ☾ ε ♉ $20^h.43'$.
22. ☉ enters ♎ at $0^h.53'$.
    ☿ ξ ♌ diff. Lat. 49′.
    ☾ 1 ad α ♋ $19^h.52'$.
    ☾ 2 ad α ♋ $20^h.47'$.
23. ☾ κ ♋ $1^h.5'$.
    ☾ ☿ $11^h.49'$.
    ☾ ο ♌ $14^h.38'$.
    ☾ π ♌ $23^h.1'$.
    ☉ eclipfed invifible.
26. ☿ ο ♌ diff. Lat. 24′.
    ♂ ♂ ♊ diff. Lat. 50′.
28. ☾ λ ♍ $10^h.27'$.
29. ☾ 4 ad ♌ ♎ $16^h.15'$.
    ☾ ν ♎ $20^h.7'$.
30. ☾ θ ♎ $0^h.14'$.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Afc. in Time.	Sun's Declin. North.	Equat. of Time. Sub.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	Tu.	5. 9. 29. 39	10. 44. 15, 5	8. 1. 7	0. 27, 3	18, 9
2	W.	5. 10. 27. 52	10. 47. 53, 1	7. 39. 8	0. 46, 2	19, 2
3	Th.	5. 11. 26. 5	10. 51. 30, 4	7. 17. 3	1. 5, 4	19, 5
4	F.	5. 12. 24. 20	10. 55. 7, 5	6. 54. 49	1. 24, 9	19, 7
5	Sa.	5. 13. 22. 37	10. 58. 44, 3	6. 32. 28	1. 44, 5	20, 0
6	*Su.*	5. 14. 20. 55	11. 2. 20, 9	6. 10. 2	2. 4, 5	20, 1
7	M.	5. 15. 19. 14	11. 5. 57, 2	5. 47. 30	2. 24, 6	20, 3
8	Tu.	5. 16. 17. 35	11. 9. 33, 3	5. 24. 52	2. 44, 9	20, 6
9	W.	5. 17. 15. 58	11. 13. 9, 3	5. 2. 8	3. 5, 5	20, 7
10	Th.	5. 18. 14. 22	11. 16. 45, 1	4. 39. 20	3. 26, 2	20, 7
11	F.	5. 19. 12. 48	11. 20. 20, 9	4. 16. 26	3. 46, 9	20, 9
12	Sa.	5. 20. 11. 16	11. 23. 56, 5	3. 53. 29	4. 7, 8	21, 0
13	*Su.*	5. 21. 9. 45	11. 27. 32, 0	3. 30. 27	4. 28, 8	21, 0
14	M.	5. 22. 8. 17	11. 31. 7, 5	3. 7. 21	4. 49, 8	21, 1
15	Tu.	5. 23. 6. 51	11. 34. 42, 9	2. 44. 12	5. 10, 9	21, 1
16	W.	5. 24. 5. 27	11. 38. 18, 3	2. 20. 58	5. 32, 0	21, 0
17	Th.	5. 25. 4. 5	11. 41. 53, 8	1. 57. 43	5. 53, 0	20, 9
18	F.	5. 26. 2. 46	11. 45. 29, 3	1. 34. 24	6. 13, 9	21, 0
19	Sa.	5. 27. 1. 29	11. 49. 4, 8	1. 11. 4	6. 34, 9	20, 8
20	*Su.*	5. 28. 0. 14	11. 52. 40, 5	0. 47. 41	6. 55, 7	20, 7
21	M.	5. 28. 59. 1	11. 56. 16, 2	0. 24. 17	7. 16, 4	20, 7
22	Tu.	5. 29. 57. 51	11. 59. 52, 1	0. 0. 51 South.	7. 37, 1	20, 5
23	W.	6. 0. 56. 43	12. 3. 28, 2	0. 22. 35	7. 57, 6	20, 3
24	Th.	6. 1. 55. 38	12. 7. 4, 3	0. 46. 2	8. 17, 9	20, 2
25	F.	6. 2. 54. 35	12. 10. 40, 7	1. 9. 30	8. 38, 1	20, 0
26	Sa.	6. 3. 53. 33	12. 14. 17, 1	1. 32. 56	8. 58, 1	19, 8
27	*Su.*	6. 4. 52. 34	12. 17. 53, 9	1. 56. 23	9. 17, 9	19, 5
28	M.	6. 5. 51. 37	12. 21. 30, 9	2. 19. 49	9. 37, 4	19, 3
29	Tu.	6. 6. 50. 43	12. 25. 8, 1	2. 43. 14	9. 56, 7	19, 0
30	W.	6. 7. 49. 49	12. 28. 45, 6	3. 6. 36	10. 15, 7	

Days of the Month.	Semidiameter of the Sun.	Time of D° passing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Distance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	15. 55, 1	1. 4, 3	2. 25, 4	0. 003499	6. 21. 51
7	15. 56, 6	1. 4, 1	2. 25, 8	0. 002811	6. 21. 32
13	15. 58, 1	1. 4, 0	2. 26, 3	0. 002103	6. 21. 13
19	15. 59, 7	1. 4, 0	2. 26, 8	0. 001393	6. 20. 54
25	16. 1, 3	1. 4. 1	2. 27, 3	0. 000670	6. 20. 35

Eclipses of the SATELLITES of JUPITER.

I. Satellite Emerſions.		II. Satellite Emerſions.		III. Satellite.		
Days	H. M. S.	Days	H. M. S.	Days	H. M. S.	
2	16. 1. 34	3	2. 35. 20	5	17. 41. 7	E
4	10*30. 53	6	15. 54. 52	12	21. 44. 34	E
6	5. 0. 11	10	5. 14. 27	20	1. 48. 14	E
7	23. 29. 33	13	18. 34. 0	27	5. 51. 57	E
9	17. 58. 51	17	7*53. 35			
11	12*28. 15	20	21. 13. 7	IV. Satellite.		
13	6. 57. 38	24	10*32. 37			
15	1. 27. 4	27	23. 52. 5	15	19. 42. 18	I
16	19. 56. 24			16	0. 16. 28	E
18	14*25. 50					
20	8*55. 12					
22	3. 24. 41					
23	21. 54. 3					
25	16. 23. 33					
27	10*52. 56					
29	5. 22. 18					

Days.	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Paſſage over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
	MERCURY. Inf. ☌ ☿ 21d. 6h.					
1	9. 14. 5	5. 57 S	6. 5. 35	3. 11 S	5. 9 S	1. 31
7	10. 2. 46	6. 49	6. 7. 52	3. 52	6. 41	1. 17
13	10. 23. 56	6. 55	6. 6. 40	4. 3	6. 22	0. 50
19	11. 18. 50	5. 52	6. 1. 36	3. 18	3. 40	0. 12
25	0. 18. 41	3. 12	5. 25. 24	1, 32	0. 22	23. 23
	VENUS.					
1	11. 21. 44	3. 22 S	4. 12. 15	7. 13 S	10. 12 N	22, 2
7	0. 1. 17	3. 15	4. 12. 31	6. 22	10. 57	21. 45
13	0. 10. 50	3. 2	4. 14. 4	5. 26	11. 25	21. 31
19	0. 20. 24	2. 45	4. 16. 43	4. 29	11. 34	21. 21
25	0. 29. 59	2. 23	4. 20. 16	3. 32	11. 23	21. 15
	MARS.					
1	1. 21. 38	0. 7 N	3. 0. 50	0. 6 N	23. 34 N	19. 19
7	1. 24. 54	0. 13	3. 4. 27	0. 13	23. 36	19. 13
13	1. 28. 8	0. 19	3. 7. 59	0. 20	23. 34	19. 7
19	2. 1. 20	0. 25	3. 11. 26	0. 27	23. 26	19. 0
25	2. 4. 31	0. 31	3. 14. 46	0. 35	23. 13	18. 53
	JUPITER.					
1	10. 28. 49	1. 1 S	10. 26. 9	1. 16 S	14. 0 S	11. 9
7	10. 29. 21	1. 1	10. 25. 26	1. 16	14. 15	10. 45
13	10. 29. 53	1. 2	10. 24. 46	1. 16	14. 28	10. 21
19	11. 0. 26	1. 2	10. 24. 11	1. 15	14. 39	9. 57
25	11. 0. 58	1. 3	10. 23. 42	1. 15	14. 49	9. 34
	SATURN.					
1	5. 3. 24	1. 40 N	5. 4. 0	1. 31 N	11. 28 N	23. 38
7	5. 3. 37	1. 41	5. 4. 45	1. 31	11. 11	23. 20
13	5. 3. 50	1. 41	5. 5. 31	1. 32	10. 55	23. 1
19	5. 4. 2	1. 42	5. 6. 15	1. 32	10. 40	22. 42
25	5. 4. 15	1. 42	5. 6. 58	1. 33	10. 24	22. 24

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midnight.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
1	Tu.	7. 2. 54. 3	7. 10. 7. 36	1. 7. 4 N	1. 44. 57 N
2	W.	7. 17. 16. 29	7. 24. 20. 31	2. 20. 43	2. 53. 56
3	Th.	8. 1. 19. 28	8. 8. 13. 35	3. 24. 7	3. 50. 58
4	F.	8. 15. 2. 47	8. 21. 47. 16	4. 14. 13	4. 33. 40
5	Sa.	8. 28. 27. 5	9. 5. 2. 34	4. 49. 10	5. 0. 38
6	*Su.*	9. 11. 33. 55	9. 18. 1. 17	5. 8. 6	5. 11. 30
7	M.	9. 24. 24. 59	10. 0. 45. 7	5. 11. 1	5. 6. 44
8	Tu.	10. 7. 1. 59	10. 13. 15. 52	4. 58. 45	4. 47. 17
9	W.	10. 19. 26. 44	10. 25. 35. 1	4. 32. 29	4. 14. 41
10	Th.	11. 1. 40. 47	11. 7. 44. 15	3. 54. 3	3. 30. 51
11	F.	11. 13. 45. 33	11. 19. 44. 59	3. 5. 26	2. 38. 4
12	Sa.	11. 25. 42. 40	0. 1. 38. 59	2. 9. 1	1. 38. 43
13	*Su.*	0. 7. 34. 0	0. 13. 28. 10	1. 7. 24	0. 35. 22 N
14	M.	0. 19. 21. 35	0. 25. 14. 50	0. 3. 2 N	0. 29. 22 S
15	Tu.	1. 1. 8. 9	1. 7. 2. 7	1. 1. 29 S	1. 33. 1
16	W.	1. 12. 56. 57	1. 18. 53. 20	2. 3. 40	2. 33. 5
17	Th.	1. 24. 51. 42	2. 0. 52. 38	3. 1. 4	3. 27. 12
18	F.	2. 6. 56. 35	2. 13. 4. 14	3. 51. 16	4. 12. 55
19	Sa.	2. 19. 16. 13	2. 25. 32. 53	4. 31. 55	4. 47. 53
20	*Su.*	3. 1. 54. 53	3. 8. 22. 46	5. 0. 34	5. 9. 39
21	M.	3. 14. 56. 52	3. 21. 37. 33	5. 14. 51	5. 15. 57
22	Tu.	3. 28. 25. 8	4. 5. 19. 39	5. 12. 41	5. 4. 51
23	W.	4. 12. 21. 10	4. 19. 29. 30	4. 52. 21	4. 35. 9
24	Th.	4. 26. 44. 17	5. 4. 4. 58	4. 13. 21	3. 47. 4
25	F.	5. 11. 30. 52	5. 19. 0. 58	3. 16. 41	2. 42. 36
26	Sa.	5. 26. 34. 15	6. 4. 9. 34	2. 5. 23	1. 25. 52
27	*Su.*	6. 11. 45. 41	6. 19. 21. 18	0. 44. 38 S	0. 2. 39 S
28	M.	6. 26. 53. 16	7. 4. 26. 24	0. 39. 12 N	1. 20. 10 N
29	Tu.	7. 11. 53. 49	7. 19. 16. 33	1. 59. 26	2. 36. 14
30	W.	7. 26. 33. 57	8. 3. 45. 37	3. 10. 6	3. 40. 28

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſſage over Merid.	☽'s Right Aſcen. at Noon.	☽'s Right Aſc. at Midn.	☽'s Declination at Noon.	☽'s Declination at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	Tu.	5	3. 28	211. 5	218. 17	11. 27 S	13. 13 S
2	W.	6	4. 24	225. 29	232. 42	14. 46	16. 4
3	Th.	7	5. 20	239. 56	247. 7	17. 7	17. 54
4	F.	8	6. 16	254. 16	261. 21	18. 25	18. 40
5	Sa.	9	7. 10	268. 22	275. 18	18. 39	18. 22
6	*Su.*	10	8. 3	282. 7	288. 48	17. 51	17. 6
7	M.	11	8. 53	295. 23	301. 49	16. 9	15. 1
8	Tu.	12	9. 41	308. 9	314. 21	13. 43	12. 16
9	W.	13	10. 28	320. 26	326. 24	10. 41	9. 0
10	Th.	14	11. 12	332. 18	338. 6	7. 15	5. 25
11	F.	15	11. 56	343. 51	349. 33	3. 32 S	1. 38 S
12	Sa.	16	12. 39	355. 13	0. 52	0. 16 N	2. 10 N
13	*Su.*	17	13. 22	6. 30	12. 10	4. 2	5. 52
14	M.	18	14. 5	17. 51	23. 34	7. 38	9. 19
15	Tu.	19	14. 50	29. 21	35. 12	10. 55	12. 25
16	W.	20	15. 35	41. 8	47. 9	13. 47	15. 0
17	Th.	21	16. 23	53. 16	59. 28	16. 4	16. 59
18	F.	22	17. 12	65. 47	72. 12	17. 41	18. 13
19	Sa.	23	18. 3	78. 43	85. 19	18. 31	18. 36
20	*Su.*	24	18. 55	92. 1	98. 47	18. 27	18. 3
21	M.	25	19. 49	105. 37	112. 30	17. 25	16. 32
22	Tu.	26	20. 43	119. 27	126. 25	15. 24	14. 2
23	W.	27	21. 38	133. 25	140. 27	12. 26	10. 38
24	Th.	28	22. 33	147. 31	154. 35	8. 39	6. 30
25	F.	29	23. 29	161. 42	168. 51	4. 13 N	1. 51 N
26	Sa.	1	♂	176. 1	183. 15	0. 33 S	2. 58 S
27	*Su.*	2	0. 25	190. 31	197. 51	5. 20	7. 37
28	M.	3	1. 23	205. 13	212. 38	9. 47	11. 46
29	Tu.	4	2. 21	220. 5	227. 33	13. 32	15. 4
30	W.	5	3. 19	235. 1	242. 29	16. 20	17. 19

Days of the Month.	Days of the Week.	Semidr. ☽ at Noon.	Semidr. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	Tu.	16. 25	16. 20	60. 15	59. 56	4753	4776
2	W.	16. 14	16. 9	59. 36	59. 15	4800	4826
3	Th.	16. 3	15. 56	58. 53	58. 30	4853	4881
4	F.	15. 50	15. 44	58. 8	57. 46	4908	4936
5	Sa.	15. 38	15. 33	57. 24	57. 3	4964	4990
6	*Su.*	15. 28	15. 22	56. 44	56. 25	5014	5038
7	M.	15. 18	15. 13	56. 8	55. 52	5060	5081
8	Tu.	15. 9	15. 5	55. 36	55. 23	5102	5119
9	W.	15. 2	14. 59	55. 10	54. 58	5136	5152
10	Th.	14. 56	14. 53	54. 47	54. 38	5166	5178
11	F.	14. 51	14. 49	54. 30	54. 23	5189	5198
12	Sa.	14. 47	14. 46	54. 17	54. 12	5206	5213
13	*Su.*	14. 45	14. 45	54. 9	54. 7	5217	5219
14	M.	14. 45	14. 45	54. 7	54. 7	5219	5219
15	Tu.	14. 46	14. 47	54. 10	54. 15	5215	5209
16	W.	14. 49	14. 51	54. 21	54. 29	5201	5190
17	Th.	14. 54	14. 57	54. 40	54. 53	5175	5158
18	F.	15. 1	15. 6	55. 8	55. 26	5138	5115
19	Sa.	15. 12	15. 18	55. 45	56. 7	5090	5062
20	*Su.*	15. 24	15. 31	56. 31	56. 56	5031	4999
21	M.	15. 38	15. 46	57. 24	57. 52	4964	4928
22	Tu.	15. 54	16. 2	58. 21	58. 50	4892	4856
23	W.	16. 9	16. 17	59. 18	59. 45	4822	4789
24	Th.	16. 24	16. 30	60. 11	60. 34	4758	4730
25	F.	16. 35	16. 40	60. 53	61. 9	4708	4689
26	Sa.	16. 43	16. 45	61. 20	61. 27	4676	4668
27	*Su.*	16. 45	16. 44	61. 29	61. 25	4665	4670
28	M.	16. 42	16. 39	61. 17	61. 5	4679	4695
29	Tu.	16. 34	16. 29	60. 48	60. 28	4714	4737
30	W.	16. 22	16. 16	00. 5	59. 40	4765	4795

Diſtances of ☽'s Center from Stars, and from ☉ eaſt of her.

Days	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	Antares.	34. 8. 1	32. 22. 40	30. 37. 59	28. 54. 2
2		72. 34. 42	70. 58. 22	69. 22. 36	67. 47. 21
3	α Aquilæ.	60. 0. 8	58. 28. 38	56. 57. 54	55. 27. 58
4		48. 11. 18			
4		45. 41. 22	43. 59. 58	42. 18. 52	40. 38. 6
5	ȝ Capricorni.	32. 18. 55	30. 39. 58	29. 1. 18	27. 22. 55
6		19. 15. 1			
6		68. 17. 2	66. 45. 4	65. 13. 27	63. 42. 9
7	α Pegaſi.	56. 11. 17	54. 42. 18	53. 13. 46	51. 45. 42
8		44. 32. 38	43. 7. 41	41. 43. 22	40. 19. 45
9		33. 34. 12	32. 16. 11	30. 59. 25	29. 44. 0
10		62. 33. 49	61. 5. 1	59. 36. 24	58. 7. 58
11	α Arietis.	50. 48. 52	49. 21. 39	47. 54. 41	46. 27. 58
12		39. 18. 25			
12		71. 13. 40	69. 44. 12	68. 14. 51	66. 45. 36
13		59. 20. 21	57. 51. 27	56. 22. 34	54. 53. 46
14	Aldebaran.	47. 30. 22	46. 1. 45	44. 33. 8	43. 4. 32
15		35. 41. 33	34. 12. 54	32. 44. 15	31. 15. 33
16		23. 51. 33	22. 22. 35	20. 53. 35	19. 24. 32
17		11. 58. 43			
17		55. 58. 9	54. 30. 57	53. 3. 42	51. 36. 28
18	Pollux.	44. 19. 58	42. 52. 38	41. 25. 23	39. 58. 11
19		32. 44. 4			
19	Regulus.	67. 30. 47	65. 57. 40	64. 24. 15	62. 50. 33
20		54. 57. 31			
17		120. 9. 37	118. 46. 56	117. 24. 5	116. 1. 5
18		109. 3. 29	107. 39. 22	106. 15. 2	104. 50. 27
19		97. 43. 47	96. 17. 40	94. 51. 15	93. 24. 33
20	The Sun.	86. 6. 15	84. 37. 34	83. 8. 30	81. 39. 5
21		74. 6. 17	72. 34. 33	71. 2. 23	69. 29. 48
22		61. 40. 25	60. 5. 14	58. 29. 37	56. 53. 33
23		48. 46. 29	47. 7. 44	45. 28. 34	43. 48. 57
28	Antares.	39. 58. 13	38. 7. 44	36. 17. 43	34. 28. 14
29		25. 31. 22			
29		77. 24. 58	75. 43. 47	74. 3. 3	72. 22. 48
30	α Aquilæ.	64. 10. 5	62. 33. 26	60. 57. 34	59. 22. 27
O.1		51. 39. 55			

Diſtances of ☽'s Center from Stars, and from ☉ eaſt of her.

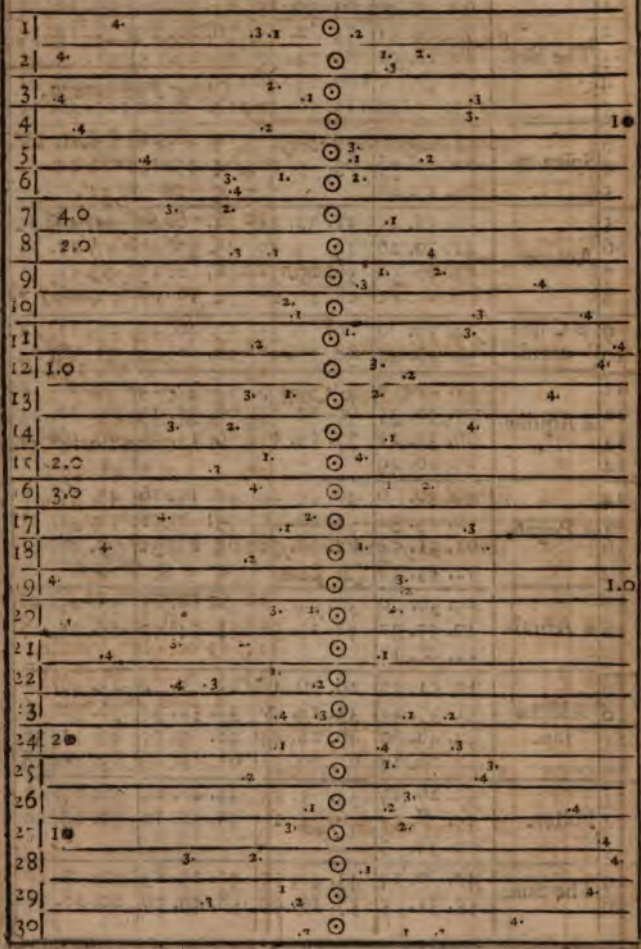
Days.	Stars Names.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	Antares.	27. 10. 52			
1		79. 4. 31	77. 26. 25	75. 48. 45	74. 11. 30
2	α Aquilæ.	66. 12. 39	64. 38. 33	63. 5. 6	61. 32. 18
3		53. 58. 48	52. 30. 31	51. 3. 9	49. 36. 44
4	β Capri-	38. 57. 39	37. 17. 31	35. 37. 41	33. 58. 9
5	corni.	25. 44. 48	24. 6. 58	22. 29. 23	20. 52. 4
6		62. 11. 13	60. 40. 39	59. 10. 28	57. 40. 41
7	α Pegaſi.	50. 18. 4	48. 50. 54	47. 24. 17	45. 58. 11
8		38. 56. 52	37. 34. 47	36. 13. 36	34. 53. 22
9		28. 30. 3			
9		68. 30. 47	67. 1. 17	65. 31. 57	64. 2. 48
10	α Arietis.	56. 39. 44	55. 11. 42	53. 43. 53	52. 16. 16
11		45. 1. 29	43. 35. 17	42. 9. 22	40. 43. 44
12		65. 16. 27	63. 47. 20	62. 18. 17	60. 49. 17
13	Aldeba-	53. 24. 59	51. 56. 17	50. 27. 37	48. 58. 59
14	ran.	41. 35. 56	40. 7. 21	38. 38. 46	37. 10. 10
15		29. 46. 50	28. 18. 5	26. 49. 17	25. 20. 26
16		17. 55. 26	16. 26. 19	14. 57. 9	13. 27. 57
17	Pollux.	50. 9. 11	48. 41. 53	47. 14. 35	45. 47. 17
18		38. 31. 4	37. 4. 2	35. 37. 10	34. 10. 30
19	Regulus.	61. 16. 34	59. 42. 17	58. 7. 40	56. 32. 45
17		114. 37. 56	113. 14. 36	111. 51. 0	110. 27. 23
18		103. 25. 39	102. 0. 35	100. 35. 15	99. 9. 39
19		91. 57. 33	90. 30. 14	89. 2. 34	87. 34. 35
20	The Sun.	80. 9. 18	78. 39. 8	77. 8. 34	75. 37. 37
21		67. 56. 48	66. 23. 22	64. 49. 29	63. 15. 10
22		55. 17. 2	53. 40. 4	52. 2. 39	50. 24. 47
23		42. 8. 55	40. 28. 27	38. 47. 34	
27	Antares.	47. 23. 47	45. 32. 0	43. 40. 25	41. 49. 8
28		32. 39. 21	30. 51. 6	29. 3. 38	27. 17. 7
29	α Aquilæ.	70. 43. 5	69. 3. 54	67. 25. 21	65. 47. 24
30		57. 48. 7	56. 14. 41	54. 42. 8	53. 10. 32

Diſtances of ☽'s Center from ☉, and from Stars weſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
1		53. 24. 53	55. 6. 32	56. 47. 54	58. 28. 59
2		66. 49. 51	68. 29. 5	70. 8. 0	71. 46. 35
3	The Sun.	79. 54. 28	81. 31. 3	83. 7. 19	84. 43. 15
4		92. 38. 0	94. 11. 59	95. 45. 40	97. 19. 2
5		105. 1. 11	106. 32. 44	108. 4. 0	109. 35. 0
6		117. 5. 54	118. 35. 18	120. 4. 27	
4	Spica ♍	54. 42. 1	56. 23. 20	58. 4. 20	59. 45. 2
5		68. 3. 53	69. 42. 46	71. 21. 23	72. 59. 44
6		36. 14. 46	37. 48. 46	39. 22. 43	40. 56. 36
7	Antares.	48. 44. 43	50. 17. 58	51. 51. 5	53. 24. 5
8		61. 6. 57	62. 39. 8	64. 11. 10	65. 43. 5
9		73. 20. 24			
9	β Capri-	18. 30. 27	20. 2. 34	21. 34. 31	23. 6. 20
10	corni.	30. 43. 20	32. 14. 22	33. 45. 16	35. 16. 4
11		42. 48. 17			
11		59. 12. 12	51. 28. 49	52. 45. 50	54. 3. 13
12	α Aquilæ.	60. 34. 57	61. 54. 5	63. 13. 24	64. 32. 54
13		71. 12. 35	72. 32. 54	73. 53. 18	75. 13. 47
14		81. 57. 3	83. 17. 51	84. 38. 41	85. 59. 34
15		44. 56. 28	46. 17. 42	47. 39. 18	49. 1. 15
16	α Pegaſi.	55. 55. 33	57. 19. 15	58. 43. 13	60. 7. 26
17		67. 12. 5	68. 37. 43	70. 3. 34	71. 29. 39
18	α Arietis.	35. 9. 7	36. 35. 24	38. 2. 14	39. 29. 36
19		46. 53. 55	48. 24. 9	49. 54. 47	51. 25. 50
20		25. 11. 37	26. 47. 28	28. 23. 43	30. 0. 21
21	Aldeba-	38. 9. 23	39. 48. 24	41. 27. 51	43. 7. 43
22	ran.	51. 33. 35	53. 16. 5	54. 59. 1	56. 42. 24
23		65. 26. 8			
23		25. 2. 43	26. 36. 7	28. 11. 18	29. 48. 5
24	Pollux.	38. 10. 31	39. 53. 58	41. 38. 13	43. 23. 13
25		52. 17. 41	54. 6. 11	55. 55. 7	57. 44. 26
29				38. 33. 49	40. 17. 12
30	The Sun.	48. 48. 44	50. 29. 55	52. 10. 42	53. 51. 5

Distances of ☽'s Center from ☉, and from Stars west of her.

Days	Stars Names.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
1		60. 9. 46	61. 50. 15	63. 30. 26	65. 10. 18
2		73. 24. 51	75. 2. 45	76. 40. 19	78. 17. 34
3	The Sun.	86. 18. 52	87. 54. 8	89. 29. 5	91. 3. 42
4		98. 52. 5	100. 24. 48	101. 57. 14	103. 29. 21
5		111. 5. 43	112. 36. 10	114. 6. 20	115. 36. 15
3		47. 53. 36	49. 36. 10	51. 18. 26	53. 0. 23
4	Spica ♍	61. 25. 25	63. 5. 28	64. 45. 15	66. 24. 42
5		74. 37. 48			
5		29. 58. 45	31. 32. 44	33. 6. 44	34. 40. 45
6	Antares.	42. 30. 26	44. 4. 10	45. 37. 47	47. 11. 19
7		54. 56. 56	56. 29. 38	58. 2. 13	59. 34. 39
8		67. 14. 51	68. 46. 28	70. 17. 56	71. 49. 15
9	β Capricorni.	24. 38. 0	26. 9. 31	27. 40. 56	29. 12. 12
10		36. 46. 44	38. 17. 18	39. 47. 44	41. 18. 4
11		55. 20. 58	56. 39. 3	57. 57. 24	59. 16. 2
12	α Aquilæ.	65. 52. 35	67. 12. 23	68. 32. 19	69. 52. 23
13		76. 34. 21	77. 54. 57	79. 15. 36	80. 36. 18
14		87. 20. 29			
14		39. 36. 6	40. 55. 24	42. 15. 16	43. 35. 38
15	α Pegasi.	50. 23. 32	51. 46. 6	53. 8. 58	54. 32. 7
16		61. 31. 54	62. 56. 36	64. 21. 31	65. 46. 41
17		72. 55. 58			
17		29. 30. 0	30. 54. 2	32. 18. 25	33. 43. 27
18	α Arietis.	40. 57. 32	42. 25. 56	43. 54. 47	45. 24. 7
19		52. 57. 17			
19		18. 51. 57	20. 26. 18	22. 1. 2	23. 36. 18
20	Aldebaran.	31. 37. 22	33. 14. 46	34. 52. 34	36. 30. 46
21		44. 48. 0	46. 28. 44	48. 9. 55	49. 51. 32
22		58. 26. 14	60. 10. 31	61. 55. 16	63. 40. 28
23		31. 26. 17	33. 5. 43	34. 46. 19	36. 27. 56
24	Pollux.	45. 8. 54	46. 55. 15	48. 42. 10	50. 29. 40
25		59. 34. 7			
29	The Sun.	42. 0. 14	43. 42. 55	45. 25. 13	47. 7. 10
30		55. 31. 5	57. 10. 40	58. 49. 50	60. 28. 35

Configurations of the SATELLITES of JUPITER at 9 o'th' Clock in the Evening.

Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	Th.	Remigius.
2	F.	
3	Sa.	
4	*Su.*	*16th Sunday after Trinity.*
5	M.	
6	Tu.	Faith.
7	W.	
8	Th.	
9	F.	S. Denys. [begin.
10	Sa.	Oxf. and Camb. Terms
11	*Su.*	*17th Sunday after Trinity.*
12	M.	
13	Tu.	Transl. of K. Edw. Conf.
14	W.	
15	Th.	
16	F.	
17	Sa.	Etheldred.
18	*Su.*	*18th Sunday after Trinity.*
19	M.	[*St. Luke.*
20	Tu.	
21	W.	
22	Th.	
23	F.	
24	Sa.	[*Acces.* Crisp.
25	*Su.*	*19th Su. af. Tr. K. Geo.* III.
26	M.	*K. Geo.* III. *procl.* 1760.
27	Tu.	
28	W.	*St. Simon and St. Jude.*
29	Th.	
30	F.	
31	Sa.	

Phases of the Moon.

	D.	H.	M.
First Quarter —	3.	5.	8
Full Moon —	11.	5.	26
Last Quarter —	19.	5.	18
New Moon —	25.	21.	49

Other Phenomena.

D.

3. ☿ ☌ ♍ diff. Lat. 11′.
4. ☾ ☌ ♀ 18h. 6′.
7. ☾ ☌ ☋ 2h. 55′.
10. ☿ ☊ ♍ diff. Lat. 25′.
☾ ☌ ♓ 20h. 9′.
11. ☾ ☍ ♓ 0h. 53′.
☾ eclipsed, partly visible.
14. ☾ 1 ♂ ♉ 23h. 49′.
15. ☾ 2 ♂ ♉ 0h. 19′.
☾ ☌ ♉ 2h. 58′.
17. ♃ Stationary.
18. ♂ ♄ ☿ diff. Lat. 2°. 5′.
20. ☾ 1 ☌ ♌ 4h. 39′.
☾ 2 ☌ ♍ 5h. 35′.
☾ ☍ ♋ 10h. 5′.
21. ☾ ☌ ☊ 0h. 5′.
☾ ☍ ☋ 8h. 43′.
22. ☉ enters ♎ at 8h. 41′.
23. ☾ ☌ ☋ 3h. 27′.
25. ☉ eclipsed, visible.
27. ☾ 4 ad ☍ ♎ 2h. 55′.
☾ ☌ ♎ 10h. 44′.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Asc. in Time.	Sun's Declin. South.	Equat. of Time Sub.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	Th.	6. 8.48.58	12.32.23,3	3.29.57	10.34,5	18,5
2	F.	6. 9.48. 8	12.36. 1,3	3.53.15	10.53,0	18,2
3	Sa.	6.10.47.20	12.39.39,6	4.16.30	11.11,2	17,9
4	*Su.*	6.11.46.34	12.43.18,3	4.39.42	11.29,1	17,5
5	M.	6.12.45.50	12.46.57,3	5. 2.50	11.46,6	17,1
6	Tu.	6.13.45. 7	12.50.36,7	5.25.55	12. 3,7	16,8
7	W.	6.14.44.26	12.54.16,4	5.48.55	12.20,5	16,3
8	Th.	6.15.43.47	12.57.56,6	6.11.51	12.36,8	15,9
9	F.	6.16.43.10	13. 1.37,2	6.34.42	12.52,7	15,4
10	Sa.	6.17.42.35	13. 5.18,3	6.57.27	13. 8,1	15,0
11	*Su.*	6.18.42. 2	13. 8.59,9	7.20. 7	13.23,1	14,4
12	M.	6.19.41.30	13.12.41,9	7.42.41	13.37,5	14,0
13	Tu.	6.20.41. 0	13.16 24,4	8. 5. 8	13.51,5	13,5
14	W.	6.21.40.33	13.20. 7,5	8.27.28	14. 5,0	12,9
15	Th.	6.22.40. 8	13.23.51,1	8.49.42	14.17,9	12,2
16	F.	6.23.39.45	13.27.35,4	9.11.48	14.30,1	11,6
17	Sa.	6.24.39.25	13.31.20,3	9.33.46	14.41,7	11,0
18	*Su.*	6.25.39. 7	13.35. 5,8	9.55.36	14.52,7	10,4
19	M.	6.26.38.51	13.38.51,9	10.17.17	15. 3,1	9,7
20	Tu.	6.27.38.38	13.42.38,8	10.38.50	15.12,8	9,0
21	W.	6.28.38.27	13.46.26,3	11. 0.13	15.21,8	8,3
22	Th.	6.29.38.19	13.50.14,5	11.21.26	15.30,1	7,7
23	F.	7. 0.38.12	13.54. 3,4	11.42.29	15.37,8	6,9
24	Sa.	7. 1.38. 8	13.57.53,0	12. 3.22	15.44,7	6,1
25	*Su.*	7. 2.38. 6	14. 1.43,4	12.24. 3	15.50,8	5,5
26	M.	7. 3.38. 6	14. 5.34,5	12.44.33	15.56,3	4,6
27	Tu.	7. 4.38. 9	14. 9.26,5	13. 4.51	16. 0,9	3,9
28	W.	7. 5.38.13	14.13.19,1	13.24.57	16. 4,8	3,2
29	Th.	7. 6.38.18	14.17.12,4	13.44.50	16. 8,0	2,5
30	F.	7. 7.38.25	14.21. 6,5	14. 4.30	16.10,5	1,6
31	Sa.	7. 8.38.34	142 5. 1,3	14.23.56	16.12,1	0,8

Days.	Semidiameter of the Sun.	Time of D° passing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Distance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	16. 3,0	1. 4,3	2. 27,9	9. 999912	6. 20. 16
7	16. 4,6	1. 4,6	2. 28,5	9. 999141	6. 19. 57
13	16. 6,3	1. 5,1	2. 28,9	9. 998388	6. 19. 38
19	16. 7,9	1. 5,6	2. 29,3	9. 997671	6. 19. 19
25	16. 9,6	1. 6,2	2. 29,8	9. 996981	6. 18. 59

Eclipses of the SATELLITES of JUPITER.

I. Satellite. Emersions.		II. Satellite. Emersions.		III. Satellite.		
Days	H. M. S.	D.	H. M. S.	D.	H. M. S.	
2	18. 21. 7	1	13. 11. 29	4	6*25. 23	I
4	12. 50. 35	5	2. 30. 42	4	9*55. 33	E
6	7*20. 0	8	15. 49. 53	11	10*29. 16	I
8	1. 49. 24	12	5. 8. 56	11	13. 58. 56	E
9	20. 18. 45	15	18. 27. 51	18	14. 32. 46	I
11	14. 48. 6	19	7*46. 35	18	18. 1. 55	E
13	9*17. 26	22	21. 5. 12	25	18. 35. 43	I
15	3. 46. 43	26	10*23. 38	25	22. 4. 20	E
16	22. 15. 59	29	23. 41. 54			
18	16. 45. 13			IV. Satellite.		
20	11*14. 25					
22	5*43. 35			2	14. 5. 3	I
24	0. 12. 44			2	18. 36. 15	E
25	18. 41. 50			19	8*25. 24	I
27	13. 10. 55			19	12. 53. 42	E
29	7*39. 58					
31	2. 8. 59					

Days.	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Paſſage over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
			MERCURY. Greateſt Elong. 6d.			
1	1. 23. 40	0. 58 N	5. 23. 8	0. 22 N	3. 4 N	23. 2
7	3. 1. 22	5. 0	5. 26. 47	1. 35	2. 44	22. 58
13	4. 7. 2	6. 55	6. 4. 34	2. 0	0. 0	23. 6
19	5. 7. 27	6. 30	6. 14. 9	1. 52	3. 52 S	23. 18
25	6. 2. 33	4. 47	6. 24. 11	1. 24	8. 5	23. 32
			VENUS. Greateſt Elong. 23d.			
1	1. 9. 35	1. 57 S	4. 24. 31	2. 39 S	10. 52 N	21. 11
7	1. 19. 12	1. 27	4. 29. 19	1. 49	10. 0	21. 9
13	1. 28. 50	0. 55	5. 4. 35	1. 4	8. 50	21. 8
19	2. 8. 29	0. 23 S	5. 10. 14	0. 23 S	7. 22	21. 7
25	2. 18. 10	0. 12 N	5. 16. 12	0. 13 N	5. 39	21. 7
			MARS. □ 19d 10h.			
1	2. 7. 39	0. 37 N	3. 18. 0	0. 43 N	22. 58 N	18. 45
7	2. 10. 46	0. 42	3. 21. 6	0. 51	22. 38	18. 36
13	2. 13. 51	0. 47	3. 24. 5	0. 59	22. 17	18. 27
19	2. 16. 54	0. 52	3. 26. 54	1. 9	21. 56	18. 17
25	2. 19. 55	0. 58	3. 29. 32	1. 19	21. 34	18. 6
			JUPITER.			
1	11. 1. 31	1. 3 S	10. 23. 19	1. 14 S	14. 56 S	9. 10
7	11. 2. 3	1. 3	10. 23. 1	1. 14	15. 1	8. 48
13	11. 2. 35	1. 4	10. 22. 52	1. 13	15. 4	8. 26
19	11. 3. 7	1. 4	10. 22. 50	1. 12	15. 4	8. 3
25	11. 8. 40	1. 5	10. 22. 56	1. 11	15. 1	7. 40
			SATURN.			
1	5. 4. 28	1. 42 N	5. 7. 40	1. 34 N	10. 9 N	22. 4
7	5. 4. 40	1. 43	5. 8. 21	1. 35	9. 56	21. 45
13	5. 4. 53	1. 43	5. 9. 0	1. 36	9. 41	21. 25
19	5. 5. 6	1. 44	5. 9. 37	1. 37	9. 29	21. 5
25	5. 5. 19	1. 44	5. 10. 11	1. 38	9. 17	20. 45

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
1	Th.	8. 10. 51. 10	8. 17. 50. 25	4. 6. 50 N	4. 29. 26 N
2	F.	8. 24. 43. 19	9. 1. 30. 1	4. 47. 42	5. 1. 35
3	Sa.	9. 8. 10. 42	9. 14. 45. 35	5. 11. 9	5. 16. 30
4	*Su.*	9. 21. 15. 2	9. 27. 39. 23	5. 17. 41	5. 14. 53
5	M.	10. 3. 59. 3	10. 10. 14. 28	5. 8. 16	4. 58. 3
6	Tu.	10. 16. 26. 0	10. 22. 34. 7	4. 44. 26	4. 27. 42
7	W.	10. 28. 39. 8	11. 4. 41. 33	4. 8. 2	3. 45. 44
8	Th.	11. 10. 41. 48	11. 16. 40. 9	3. 21. 4	2. 54. 21
9	F.	11. 22. 36. 59	11. 28. 32. 37	2. 25. 49	1. 55. 47
10	Sa.	0. 4. 27. 21	0. 10. 21. 27	1. 24. 33	0. 52. 29 N
11	*Su.*	0. 16. 15. 18	0. 22. 9. 5	0. 19. 53 N	0. 12. 55 S
12	M.	0. 28. 3. 1	1. 3. 57. 28	0. 45. 36 S	1. 17. 51
13	Tu.	1. 9. 52. 41	1. 15. 48. 57	1. 49. 19	2. 19. 40
14	W.	1. 21. 46. 31	1. 27. 45. 49	2. 48. 39	3. 15. 52
15	Th.	2. 3. 47. 9	2. 9. 50. 55	3. 41. 4	4. 3. 59
16	F.	2. 15. 57. 24	2. 22. 7. 5	4. 24. 17	4. 41. 42
17	Sa.	2. 28. 20. 16	3. 4. 37. 31	4. 56. 0	5. 6. 54
18	*Su.*	3. 10. 59. 12	3. 17. 25. 37	5. 14. 9	5. 17. 36
19	M.	3. 23. 57. 21	4. 0. 34. 36	5. 17. 1	5. 12. 17
20	Tu.	4. 7. 17. 36	4. 14. 6. 44	5. 3. 14	4. 49. 46
21	W.	4. 21. 2. 3	4. 28. 3. 40	4. 31. 55	4. 9. 46
22	Th.	5. 5. 11. 27	5. 12. 25. 15	3. 43. 27	3. 13. 16
23	F.	5. 19. 44. 31	5. 27. 8. 55	2. 39. 32	2. 2. 45
24	Sa.	6. 4. 37. 40	6. 12. 9. 47	1. 23. 29	0. 42. 30 S
25	*Su.*	6. 19. 44. 19	6. 27. 20. 3	0. 0. 35 S	0. 41. 26 N
26	M.	7. 4. 55. 47	7. 12. 30. 19	1. 22. 42 N	2. 2. 25
27	Tu.	7. 20. 2. 18	7. 27. 30. 46	2. 39. 43	3. 13. 56
28	W.	8. 4. 54. 41	8. 12. 13. 7	3. 44. 33	4. 11. 4
29	Th.	8. 19. 25. 22	8. 26. 31. 7	4. 33. 13	4. 50. 50
30	F.	9. 3. 29. 52	9. 10. 21. 45	5. 3. 45	5. 12. 6
31	Sa.	9. 17. 6. 33	9. 23. 44. 36	5. 15. 57	5. 15. 30

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſſage over Merid.	☽'s Right Aſcen. at Noon.	☽'s Right Aſc. at Midn.	☽'s Declinat. at Noon	☽'s Declin. at Midn.
			H. M.	M. S.	D. M.	M. S.	D. M.
1	Th.	6	4. 17	249. 53	257. 13	18. 1 S	18. 27 S
2	F.	7	5. 13	264. 27	271. 34	18. 34	18. 26
3	Sa.	8	6. 7	278. 34	285. 25	18. 2	17. 24
4	*Su.*	9	6. 59	292. 7	298. 40	16. 33	15. 31
5	M.	10	7. 48	305. 4	311. 19	14. 17	12. 54
6	Tu.	11	8. 35	317. 27	323. 27	11. 24	9. 47
7	W.	12	9. 20	329. 21	335. 10	8. 5	6. 18
8	Th.	13	10. 2	340. 55	346. 36	4. 28	2. 36 S
9	F.	14	10. 46	352. 16	357. 54	0. 42 S	1. 11 N
10	Sa.	15	11. 28	3. 32	9. 10	3. 4 N	4. 55
11	*Su.*	16	12. 12	14. 51	20. 33	6. 42	8. 26
12	M.	17	12. 56	26. 19	32. 9	10. 5	11. 38
13	Tu.	18	13. 41	38. 3	44. 2	13. 4	14. 22
14	W.	19	14. 28	50. 6	56. 15	15. 31	16. 30
15	Th.	20	15. 16	62. 30	68. 50	17. 19	17. 56
16	F.	21	16. 6	75. 14	81. 43	18. 21	18. 33
17	Sa.	22	16. 56	88. 15	94. 51	18. 31	18. 16
18	*Su.*	23	17. 48	101. 30	108. 11	17. 48	17. 5
19	M.	24	18. 40	114. 54	121. 38	16. 8	14. 58
20	Tu.	25	19. 32	128. 23	135. 9	13. 34	11. 59
21	W.	26	20. 25	141. 57	148. 47	10. 12	8. 15
22	Th.	27	21. 18	155. 39	162. 34	6. 9	3. 56 N
23	F.	28	22. 13	169. 32	176. 34	1. 37 N	0. 45 S
24	Sa.	29	23. 9	183. 42	190. 54	3. 7 S	5. 28
25	*Su.*	1	♂	198. 13	205. 37	7. 44	9. 53
26	M.	2	0. 7	213. 7	220. 41	11. 53	13. 40
27	Tu.	3	1. 6	228. 20	236. 0	15. 12	16. 28
28	W.	4	2. 7	243. 40	251. 19	17. 27	18. 8
29	Th.	5	3. 5	258. 53	266. 20	18. 30	18. 34
30	F.	6	4. 2	273. 40	280. 51	18. 22	17. 52
31	Sa.	7	4. 56	287. 51	294. 41	17. 9	16. 12

Days of the Month.	Days of the Week.	Semidr. ☽ at Noon.	Semidr. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	Th.	16. 8	16. 1	59. 14	58. 47	4827	4860
2	F.	15. 54	15. 46	58. 19	57. 52	4895	4928
3	Sa.	15. 39	15. 32	57. 26	57. 1	4961	4992
4	*Su.*	15. 26	15. 20	56. 37	56. 14	5023	5053
5	M.	15. 14	15. 9	55. 54	55. 35	5079	5103
6	Tu.	15. 4	15. 0	55. 18	55. 3	5125	5145
7	W.	14. 57	14. 53	54. 50	54. 39	5162	5177
8	Th.	14. 51	14. 48	54. 29	54. 21	5190	5201
9	F.	14. 47	14. 45	54. 15	54. 10	5209	5215
10	Sa.	14. 45	14. 44	54. 6	54. 4	5221	5223
11	*Su.*	14. 44	14. 44	54. 3	54. 4	5225	5223
12	M.	14. 44	14. 45	54. 6	54. 9	5221	5217
13	Tu.	14. 46	14. 48	54. 13	54. 19	5211	5203
14	W.	14. 50	14. 53	54. 26	54. 35	5194	5182
15	Th.	14. 55	14. 59	54. 46	54. 58	5167	5152
16	F.	15. 2	15. 7	55. 12	55. 27	5133	5114
17	Sa.	15. 11	15. 17	55. 45	56. 4	5090	5065
18	*Su.*	15. 22	15. 29	56. 25	56. 48	5038	5009
19	M.	15. 35	15. 42	57. 12	57. 37	4979	4947
20	Tu.	15. 49	15. 56	58. 3	58. 30	4915	4881
21	W.	16. 4	16. 11	58. 57	59. 23	4848	4815
22	Th.	16. 18	16. 24	59. 49	60. 13	4784	4755
23	F.	16. 30	16. 35	60. 34	60. 53	4730	4708
24	Sa.	16. 40	16. 43	61. 8	61. 19	4690	4677
25	*Su.*	16. 44	16. 45	61. 25	61. 27	4670	4668
26	M.	16. 44	16. 42	61. 24	61. 15	4671	4682
27	Tu.	16. 38	16. 33	61. 2	60. 45	4697	4717
28	W.	16. 28	16. 21	60. 25	60. 1	4741	4770
29	Th.	16. 14	16. 7	59. 34	59. 7	4802	4835
30	F.	15. 59	15. 51	58. 38	58. 10	4871	4906
31	Sa.	15. 43	15. 35	57. 40	57. 12	4943	4979

Diſtances of ☽'s Center from Stars, and from ☉ eaſt of her.

Days	Stars Names.	Noon. D. M. S.	3 Hours. D. M. S.	6 Hours. D. M. S.	9 Hours. D. M. S.
1	β Capricorni.	49. 52. 21	48. 7. 3	46. 22. 11	44. 37. 44
2		36. 1. 49	34. 19. 52	32. 38. 20	30. 57. 11
3		22. 37. 21			
3	α Pegaſi.	71. 27. 40	69. 53. 30	68. 19. 48	66. 46. 32
4		59. 7. 8	57. 36. 39	56. 6. 40	54. 37. 12
5		47. 17. 41	45. 51. 27	44. 25. 54	43. 1. 1
6		36. 7. 54			
6	α Arietis.	77. 26. 44	75. 56. 29	74. 26. 28	72. 56. 38
7		65. 30. 37	64. 2. 0	62. 33. 35	61. 5. 20
8		53. 46. 52	52. 19. 44	50. 52. 49	49. 26. 7
9		42. 15. 55	40. 50. 36	39. 25. 36	38. 0. 57
10		31. 3. 26			
10	Aldebaran.	62. 27. 49	60. 58. 59	59. 30. 9	58. 1. 20
11		50. 37. 25	49. 8. 40	47. 39. 54	46. 11. 9
12		38. 47. 16	37. 18. 27	35. 49. 36	34. 20. 44
13		26. 55. 56			
13	Pollux.	70. 34. 59	69. 7. 55	67. 40. 52	66. 13. 48
14		58. 58. 27	57. 31. 21	56. 4. 15	54. 37. 10
15		47. 21. 57			
15	Regulus.	82. 55. 51	81. 25. 27	79. 54. 55	78. 24. 15
16		70. 48. 44	69. 17. 8	67. 45. 22	66. 13. 24
17		58. 30. 44	56. 57. 33	55. 24. 9	53. 50. 30
18		45. 58. 43	44. 23. 36	42. 48. 13	41. 12. 35
19		33. 10. 22	31. 33. 10	29. 55. 44	28. 18. 4
17	The Sun.	116. 12. 50	114. 46. 40	113. 20. 14	111. 53. 34
18		104. 36. 9	103. 7. 51	101. 39. 15	100. 10. 21
19		92. 40. 50	91. 9. 55	89. 38. 38	88. 7. 0
20		80. 23. 18	78. 49. 24	77. 15. 6	75. 40. 24
21		67. 40. 50	66. 3. 40	64. 26. 5	62. 48. 6
22		54. 32. 4	52. 51. 37	51. 10. 47	49. 29. 34
23		40. 57. 58	39. 14. 35		
27	α Aquilæ.	70. 1. 46	68. 20. 26	66. 39. 34	64. 59. 14
28		56. 47. 52	55. 12. 2	53. 37. 8	52. 3. 14
29	β Capricorni.	41. 18. 54	39. 32. 4	37. 45. 40	35. 59. 44
30		27. 16. 56	25. 33. 44	23. 50. 59	22. 8. 39
31	α Pegaſi.	63. 1. 13	61. 26. 58	59. 53. 16	58. 20. 8
N. 1		50. 43. 29			

Distances of ☽'s Center from Stars, and from ☉ east of her.

Days.	Stars Names.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	♑ Capricorni.	42. 53. 43	41. 10. 7	39. 26. 56	37. 44. 10
2		29. 16. 27	27. 36. 6	25. 56. 8	24. 16. 33
3		65. 13. 45	63. 41. 24	62. 9. 30	60. 38. 5
4	α Pegasi.	53. 8. 13	51. 39. 44	50. 11. 49	48. 44. 28
5		41. 36. 49	40. 13. 23	38. 50. 42	37. 28. 54
6		71. 27. 2	69. 57. 38	68. 28. 26	66. 59. 25
7	α Arietis.	59. 37. 17	58. 9. 24	56. 41. 42	55. 14. 11
8		47. 59. 37	46. 33. 19	45. 7. 16	43. 41. 28
9		36. 36. 37	35. 12. 41	33. 49. 9	32. 26. 4
10	Aldebaran.	56. 32. 32	55. 3. 44	53. 34. 58	52. 6. 11
11		44. 42. 23	43. 13. 38	41. 44. 51	40. 16. 4
12		32. 51. 50	31. 22. 55	29. 53. 57	28. 24. 58
13	Pollux.	64. 46. 44	63. 19. 40	61. 52. 35	60. 25. 31
14		53. 10. 4	51. 43. 0	50. 15. 57	48. 48. 56
15		76. 53. 27	75. 22. 31	73. 51. 25	72. 20. 9
16		64. 41. 16	63. 8. 57	61. 36. 25	60. 3. 41
17	Regulus.	52. 16. 38	50. 42. 31	49. 8. 10	47. 33. 34
18		39. 36. 41	38. 0. 29	36. 24. 2	34. 47. 20
19		26. 40. 10			
16			120. 29. 57	119. 4. 29	117. 38. 46
17		110. 26. 38	108. 59. 26	107. 31. 57	106. 4. 11
18		98. 41. 8	97. 11. 34	95. 41. 39	94. 11. 25
19	The Sun.	86. 35. 0	85. 2. 39	83. 29. 55	81. 56. 48
20		74. 5. 18	72. 29. 48	70. 53. 53	69. 17. 34
21		61. 9. 43	59. 30. 55	57. 51. 42	56. 12. 5
22		47. 47. 57	46. 5. 59	44. 23. 39	42. 40. 59
27	ε Aquilæ.	63. 19. 31	61. 40. 27	60. 2. 9	58. 24. 37
28		50. 30. 22			
28	β Capricorni.	48. 30. 23	46. 41. 55	44. 53. 50	43. 6. 10
29		34. 14. 14	32. 29. 13	30. 44. 40	29. 0. 34
30		20. 26. 45			
30	ε Pegasi.	69. 23. 46	67. 47. 18	66. 11. 23	64. 36. 1
31		56. 47. 33	55. 15. 39	53. 44. 19	52. 13. 35

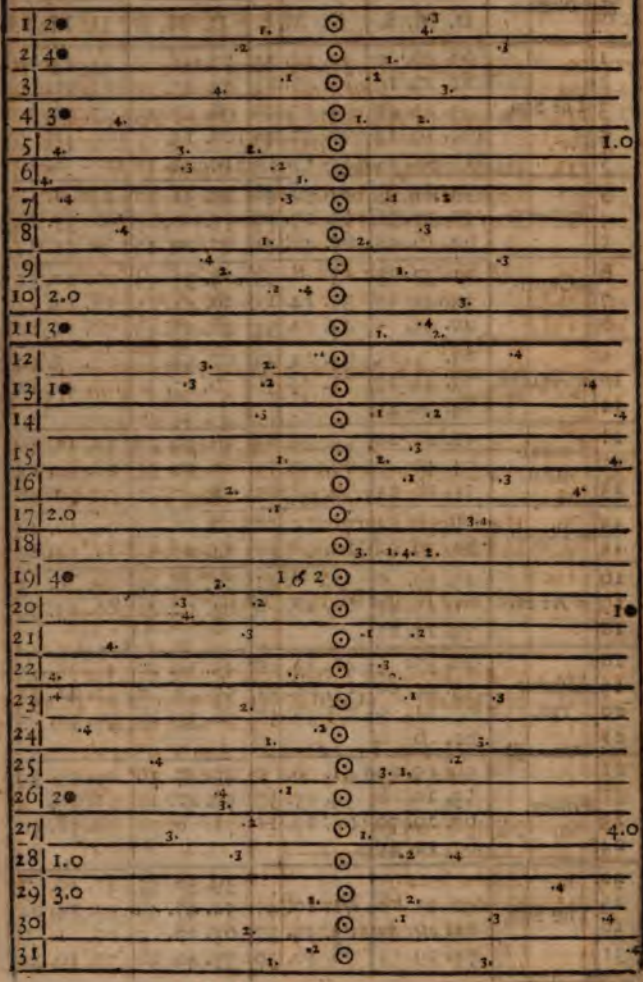
Distances of ☽'s Center from ☉, and from Stars west of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
1		62. 6. 55	63. 44. 49	65. 22. 18	66. 59. 22
2		74. 58. 25	76. 32. 59	78. 7. 10	79. 40. 56
3	The Sun.	87. 24. 0	88. 55. 28	90. 26. 35	91. 57. 21
4		99. 26. 2	100. 54. 47	102. 23. 14	103. 51. 23
5		111. 7. 52	112. 34. 22	114. 0. 37	115. 26. 38
3		33. 0. 51	34. 36. 17	36. 11. 37	37. 46. 49
4	Antares.	45. 40. 30	47. 14. 40	48. 48. 38	50. 22. 24
5		58. 8. 6	59. 40. 36	61. 12. 55	62. 45. 2
6		70. 22. 45			
6		15. 30. 17	17. 2. 20	18. 34. 12	20. 5. 52
7	β Capri-	27. 41. 48	29. 12. 32	30. 43. 8	32. 13. 37
8	corni.	39. 44. 19	41. 14. 8	42. 43. 52	44. 13. 31
9		51. 40. 38			
9		57. 50. 30	59. 8. 51	60. 27. 28	61. 46. 19
10	α Aquilæ.	68. 23. 45	69. 43. 44	71. 3. 50	72. 24. 5
11		79. 6. 58	80. 27. 49	81. 48. 43	83. 9. 41
12		59. 29. 53	60. 47. 28	62. 5. 21	63. 23. 34
13	Fomal-	69. 58. 45	71. 18. 29	72. 38. 25	73. 58. 33
14	haut.	80. 41. 47			
14		64. 16. 48	65. 41. 57	67. 7. 19	68. 32. 50
15	α Pegasi.	75. 43. 16	77. 9. 54	78. 36. 43	80. 3. 42
16		87. 21. 14			
16		43. 43. 39	45. 11. 59	46. 40. 39	48. 9. 40
17	α Arietis.	55. 39. 44	57. 10. 44	58. 42. 4	60. 13. 44
18		67. 56. 57	69. 30. 35	71. 4. 33	72. 38. 50
19		47. 6. 49	48. 45. 7	50. 23. 46	52. 2. 47
20	Aldeba-	60. 23. 26	62. 4. 44	63. 46. 26	65. 28. 32
21	ran.	74. 5. 12	75. 49. 46	77. 34. 46	79. 20. 10
22		46. 12. 29	47. 56. 0	49. 40. 7	51. 24. 49
23	Pollux.	60. 16. 20	62. 4. 6	63. 52. 16	65. 40. 51
24		74. 49. 8	76. 39. 41	78. 30. 30	80. 21. 31
29		42. 58. 46	44. 38. 3	46. 16. 55	47. 55. 19
30	The Sun.	56. 0. 32	57. 36. 15	59. 11. 31	60. 46. 20
31		68. 33. 43	70. 5. 53	71. 37. 39	73. 8. 59
N. 1		80. 39. 43			

Diſtances of ☽'s Center from ☉, and from Stars weſt of her.

Days.	Stars Names.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
1		68. 36. 0	70. 12. 13	71. 48. 2	73. 23. 26
2		81. 14. 19	82. 47. 18	84. 19. 55	85. 52. 9
3	The Sun.	93. 27. 45	94. 57. 49	96. 27. 33	97. 56. 57
4		105. 19. 14	106. 46. 48	108. 14. 5	109. 41. 7
5		116. 52. 25	118. 17. 58	119. 43. 18	121. 8. 26
3		39. 21. 53	40. 56. 48	42. 31. 32	44. 6. 7
4	Antares.	51. 55. 58	53. 29. 19	55. 2. 27	56. 35. 23
5		64. 16. 58	65. 48. 42	67. 20. 17	68. 51. 37
6		21. 37. 23	23. 8. 43	24. 39. 54	26. 10. 55
7	β Capricorni.	33. 43. 58	35. 14. 13	36. 44. 21	38. 14. 23
8		45. 43. 5	47. 12. 34	48. 41. 59	50. 11. 20
9		63. 5. 25	64. 24. 44	65. 44. 13	67. 3. 54
10	α Aquilæ.	73. 44. 27	75. 4. 56	76. 25. 31	77. 46. 12
11		84. 30. 41			
11		54. 23. 20	55. 39. 23	56. 55. 50	58. 12. 40
12	Fomalhaut.	64. 42. 5	66. 0. 53	67. 19. 55	68. 39. 13
13		75. 18. 52	76. 39. 22	78. 0. 1	79. 20. 48
14		69. 58. 34	71. 24. 28	72. 50. 33	74. 16. 49
15	α Pegaſi.	81. 30. 52	82. 58. 12	84. 25. 43	85. 53. 25
16		49. 39. 0	51. 8. 41	52. 38. 42	54. 9. 3
17	α Arietis.	61. 45. 43	63. 18. 2	64. 50. 41	66. 23. 39
18		74. 13. 27			
18		40. 37. 5	42. 14. 0	43. 51. 16	45. 28. 52
19	Aldebaran.	53. 42. 10	55. 21. 55	57. 2. 2	58. 42. 33
20		67. 11. 3	68. 53. 58	70. 37. 18	72. 21. 3
21		81. 6. 0			
21		39. 25. 25	41. 6. 5	42. 47. 30	44. 29. 39
22	Pollux.	53. 10. 8	54. 55. 57	56. 42. 15	58. 29. 3
23		67. 29. 50	69. 19. 11	71. 8. 51	72. 58. 50
24		82. 12. 45			
28				39. 38. 55	41. 19. 3
29	The Sun.	49. 33. 18	51. 10. 47	52. 47. 49	54. 24. 24
30		62. 20. 43	63. 54. 37	65. 28. 5	67. 1. 7
31		74. 39. 55	76. 10. 30	77. 40. 38	79. 10. 22

Configurations of the SATELLITES of JUPITER at 8 o' th' Clock in the Evening.



Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	*Su.*	20*th Sunday after Trinity.*
2	M.	[*All Saints.*
3	Tu.	On mor. of All Souls, 1
4	W.	[ret
5	Th.	*Powder Plot*, 1605.
6	F.	Leon. Mich. T. begins.
7	Sa.	*D. of Cumberland born.*
8	*Su.*	21*st Sunday after Trinity.*
9	M.	
10	Tu.	
11	W.	S. Martin.
12	Th.	On mor. of S. Martin, 2
13	F.	Britius. [ret.
14	Sa.	
15	*Su.*	22*d Sunday after Trinity.*
16	M.	[Machutus.
17	Tu.	Hugh Bp. of Lincoln.
18	W.	In 8 days of S. Martin, 3
19	Th.	[ret.
20	F.	Edmund K. and Martyr.
21	Sa.	
22	*Su.*	23*d Sunday after Trinity.*
23	M.	S. Clement. [Cecilia.
24	Tu.	
25	W.	*D. of Glo. born.* In 15 days
26	Th.	[of S. Martin, 4 ret.
27	F.	
28	Sa.	Mich. Term ends.
29	*Su.*	*Advent Sunday.*
30	M.	*St. Andrew. Pri. Dow. of* [*Wales born*, 1719.

Phaſes of the Moon.

	D. H. M.
First Quarter—	1. 19. 5
Full Moon —	9. 23. 54
Laſt Quarter —	17. 16. 30
New Moon —	24. 8. 16

Other Phenomena.

D.

1. ☾ ☍ ♍ 1h. 8′.
   ☿ ☍ ♏ diff. Lat. 10′.
3. ☾ ☌ ♒ 9h. 10′.
6. ☾ ☌ ♓ 19h. 35′.
7. ♄ ☍ ♌ diff. Lat. 21′.
   ☾ ✶ ♓ 2h. 28′.
   ☾ ☐ ♓ 7h. 13′.
8. ☿ ☌ ♏ diff. Lat. 3′.
11. ☾ 1 ad ☌ ♉ 5h. 42′.
    ☾ 2 ad ☌ ♉ 6h. 13′.
    ☾ ✶ ♉ 8h. 49′.
16. ☾ 1 ad ☍ ♋ 1m. 9h. 20′.
    * 0¾′. N. of ☽'s cent.
    Em. 10h. 11½′, * 2½′. S.
    ☾ 2 ad ☍ ♋ 12h. 4′.
    ☾ ☍ ♋ 16h. 37′.
17. ☾ ☌ ♌ 7h. 0′.
    ☾ ☐ ♌ 15h. 57′.
19. ☾ ☍ ♌ 12h. 14′.
20. ☿ ☌ ♏ diff. Lat. 12′.
21. ☉ enters ♐ at 4h. 49′.
22. ☾ ☍ ♏ 9h. 0′.
28. ☾ ☍ ♍ 9h. 58′.
30. ☾ ☌ ♒ 16h. 39′.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Aſc. in Time.	Sun's Declin. South.	Equat. of Time. Sub.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	*Su.*	7. 9. 38. 44	14. 28. 57, 1	14.43. 7	16. 12, 9	0, 1
2	M.	7. 10. 38. 56	14. 32. 53, 5	15. 2. 5	16. 13, 0	0, 7
3	Tu.	7. 11. 39. 10	14. 36. 50, 8	15.20.48	16. 12, 3	1, 6
4	W.	7. 12. 39. 25	14. 40. 48, 9	15.39.15	16. 10, 7	2, 3
5	Th.	7. 13. 39. 41	14. 44. 47, 8	15.57.27	16. 8, 4	3, 1
6	F.	7. 14. 39. 59	14. 48. 47, 4	16.15.23	16. 5, 3	3, 9
7	Sa.	7. 15. 40. 18	14. 52. 48, 0	16.33. 2	16. 1, 4	4, 8
8	*Su.*	7. 16. 40. 39	14. 56. 49, 3	16.50.24	15. 56, 6	5, 6
9	M.	7. 17. 41. 1	15. 0. 51, 5	17. 7.29	15. 51, 0	6, 5
10	Tu.	7. 18. 41. 26	15. 4. 54, 5	17.24.17	15. 44, 5	7, 3
11	W.	7. 19. 41. 51	15. 8. 58, 4	17.40.46	15. 37, 2	8, 2
12	Th.	7. 20. 42. 19	15. 13. 3, 2	17.56.58	15. 29, 0	9, 0
13	F.	7. 21. 42. 48	15. 17. 8, 7	18.12.50	15. 20, 0	9, 9
14	Sa.	7. 22. 43. 19	15. 21. 15, 2	18.28.23	15. 10, 1	10, 7
15	*Su.*	7. 23. 43. 52	15. 25. 22, 5	18.43.37	14. 59, 4	11, 6
16	M.	7. 24. 44. 27	15. 29. 30, 7	18.58.31	14. 47, 8	12, 5
17	Tu.	7. 25. 45. 4	15. 33. 39, 7	19.13. 5	14. 35, 3	13, 3
18	W.	7. 26. 45. 42	15. 37. 49, 7	19.27.17	14. 22, 0	14, 1
19	Th.	7. 27. 46. 22	15. 42. 0, 4	19.41. 9	14. 7, 9	15, 0
20	F.	7. 28. 47. 4	15. 46. 12, 0	19.54.40	13. 52, 9	15, 8
21	Sa.	7. 29. 47. 48	15. 50. 24, 4	20. 7.49	13. 37, 1	16, 7
22	*Su.*	8. 0. 48. 34	15. 54. 37, 7	20.20.35	13. 20, 4	17, 4
23	M.	8. 1. 49. 21	15. 58. 51, 6	20.32.59	13. 3, 0	18, 2
24	Tu.	8. 2. 50. 9	16. 3. 6, 5	20.45. 0	12. 44, 8	19, 0
25	W.	8. 3. 50. 59	16. 7. 22, 1	20.56.38	12. 25, 8	19, 7
26	Th.	8. 4. 51. 50	16. 11. 38, 4	21. 7.52	12. 6, 1	20, 4
27	F.	8. 5. 52. 42	16. 15. 55, 4	21.18.42	11. 45, 7	21. 1
28	Sa.	8. 6. 53. 36	16. 20. 13, 1	21.29. 8	11. 24, 6	21, 8
29	*Su.*	8. 7. 54. 30	16. 24. 31, 5	21.39. 9	11. 2, 8	22, 4
30	M.	8. 8. 55. 25	16. 28. 50, 5	21.48.46	10. 40, 4	23, 0

Days of the Month.	Semidiameter of the Sun.	Time of D° passing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Distance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	16. 11, 2	1. 6, 9	2. 30, 4	9. 996182	6. 18. 37
7	16. 12, 7	1. 7, 6	2. 30, 8	9. 995530	6. 18. 18
13	16. 14, 0	1. 8, 4	2. 31, 3	9. 994944	6. 17. 59
19	16. 15, 2	1. 9, 0	2. 31, 7	9. 994429	6. 17. 40
25	16. 16, 3	1. 9, 7	2. 32, 1	9. 993970	6. 17, 21

Eclipses of the SATELLITES of JUPITER.

I. Satellite Emerſions.		II. Satellite Emerſions.		III. Satellite.		
Days	H. M. S.	Days	H. M. S.	Days	H. M. S.	
1	20. 37. 55	2	12. 59. 48	1	22. 38. 6	I
3	15. 6. 52	6	2. 17. 40	2	2. 6. 16	E
5	9*35. 45	9	15. 35. 16	9	2. 39. 50	I
7	4. 4. 36	13	4*52. 45	9	6* 7. 22	E
8	22. 33. 24	16	18. 10. 4	16	6*40. 59	I
10	17. 2. 8	20	7*27. 14	16	10. 7. 54	E
12	11. 30. 53	23	20. 44. 9	23	10. 41. 23	I
14	5*59. 34	27	10. 0. 56	23	14. 7. 40	E
16	0. 28. 12	30	23. 17. 32	30	14. 41. 8	I
17	18. 56. 48			30	18. 6. 48	E
19	13. 25. 23					
21	7*53. 54			IV. Satellite.		
23	2. 22. 23					
24	20. 50. 48			5	2. 44. 11	I
26	15. 19. 13			5	7* 9. 11	E
28	9. 47. 34			21	20. 59. 44	I
30	4. 15. 54			22	1. 20. 54	E

Days.	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Paſſage over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
			MERCURY. Sup. ☌ 7ᵈ. 6½ʰ.			
1	6.26.56	2.16 N	7. 5.48	0.42 N	12.49 S	23.48
7	7.15.13	0. 4 N	7.15.31	0. 1 N	16.29	0. 0
13	8. 2.10	1.59 S	7.25. 3	0.38 S	19.40	0.13
19	8.18.39	3.48	8. 4.25	1.14	22.16	0.27
25	9. 5.26	5.20	8.13.42	1.45	24.12	0.41
			VENUS.			
1	2.29.29	0.52 N	5.23.27	0.49 N	3.21 N	21. 8
7	3. 9.12	1.25	5.29.54	1.16	1.11 N	21. 9
13	3.18.56	1.55	6. 6.31	1.37	1. 6 S	21. 9
19	3.28.40	2.22	6.13.16	1.54	3.30	21.10
25	4. 8.25	2.44	6.20. 9	2. 6	5.57	21.10
			MARS.			
1	2.23.24	1. 4 N	4. 2.23	1.32 N	21. 9 N	17.49
7	2.26.22	1. 9	4. 4.34	1.43	20.49	17.34
13	2.29.18	1.13	4. 6.30	1.55	20.32	17.18
19	3. 2.12	1.17	4. 8. 8	2. 8	20.19	17. 0
25	3. 5. 5	1.21	4. 9.27	2.22	20.12	16.40
			JUPITER. □ 15ᵈ. 11ʰ.			
1	11. 4.17	1. 5 S	10.23.10	1.10 S	14.55 S	7.14
7	11. 4.50	1. 6	10.23.30	1. 9	14.47	6.52
13	11. 5.22	1. 6	10.23.58	1. 8	14.37	6.29
19	11. 5.55	1. 7	10.24.31	1. 7	14.25	6. 6
25	11. 6.27	1. 7	10.25.11	1. 6	14.11	5.43
			SATURN.			
1	5. 5.33	1.45 N	5.10.48	1.39 N	9. 4 N	20.20
7	5. 5.46	1.45	5.11.17	1.41	8.54	19.58
13	5. 5.59	1.45	5.11.44	1.42	8.45	19.35
19	5. 6.12	1.46	5.12. 7	1.44	8.37	19.11
25	5. 6.24	1.46	5.12.26	1.45	8.31	18.47

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midnight.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
1	*Su.*	10. 0. 16. 7	10. 6. 41. 36	5. 10. 57 N	5. 2. 33 N
2	M.	10. 13. 1. 24	10. 19. 16. 0	4. 50. 33	4. 35. 15
3	Tu.	10. 25. 26. 2	11. 1. 32. 4	4. 16. 54	3. 55. 53
4	W.	11. 7. 34. 41	11. 13. 34. 24	3. 32. 24	3. 6. 45
5	Th.	11. 19. 31. 50	11. 25. 27. 29	2. 39. 15	2. 10. 11
6	F.	0. 1. 21. 57	0. 7. 15. 39	1. 39. 48	1. 8. 28
7	Sa.	0. 13. 9. 6	0. 19. 2. 38	0. 36. 25 N	0. 4. 1 N
8	*Su.*	0. 24. 56. 41	1. 0. 51. 36	0. 28. 27 S	1. 0. 41 S
9	M.	1. 6. 47. 40	1. 12. 45. 5	1. 32. 17	2. 2. 59
10	Tu.	1. 18. 44. 9	1. 24. 45. 6	2. 32. 27	3. 0. 20
11	W.	2. 0. 48. 4	2. 6. 53. 21	3. 26. 18	3. 50. 5
12	Th.	2. 13. 0. 56	2. 19. 11. 8	4. 11. 21	4. 29. 50
13	F.	2. 25. 24. 2	3. 1. 39. 51	4. 45. 13	4. 57. 19
14	Sa.	3. 7. 58. 44	3. 14. 20. 55	5. 5. 54	5. 10. 47
15	*Su.*	3. 20. 46. 29	3. 27. 15. 46	5. 11. 49	5. 8. 54
16	M.	4. 3. 48. 51	4. 10. 26. 3	5. 1. 56	4. 50. 53
17	Tu.	4. 17. 7. 30	4. 23. 53. 26	4. 35. 47	4. 16. 39
18	W.	5. 0. 43. 57	5. 7. 39. 13	3. 53. 43	3. 27. 5
19	Th.	5. 14. 39. 17	5. 21. 44. 7	2. 57. 4	2. 24. 1
20	F.	5. 28. 53. 42	6. 6. 7. 39	1. 48. 23	1. 10. 40 S
21	Sa.	6. 13. 25. 46	6. 20. 47. 30	0. 31. 27 S	0. 8. 34 N
22	*Su.*	6. 28. 12. 13	7. 5. 39. 15	0. 48. 41 N	1. 28. 8
23	M.	7. 13. 7. 31	7. 20. 36. 4	2. 6. 6	2. 41. 56
24	Tu.	7. 28. 3. 46	8. 5. 29. 37	3. 14. 51	3. 44. 16
25	W.	8. 12. 52. 27	8. 20. 11. 18	4. 9. 43	4. 30. 45
26	Th.	8. 27. 25. 9	9. 4. 33. 19	4. 47. 14	4. 58. 58
27	F.	9. 11. 35. 19	9. 18. 30. 36	5. 5. 57	5. 8. 20
28	Sa.	9. 25. 18. 57	10. 2. 0. 29	5. 6. 17	5. 0. 2
29	*Su.*	10. 8. 35. 12	10. 15. 3. 18	4. 49. 54	4. 36. 10
30	M.	10. 21. 25. 20	10. 27. 41. 40	4. 19. 14	3. 59. 22

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſſage over Merid.	☽'s Right Aſcen. at Noon.	☽'s Right Aſc. at Midn.	☽'s Declination at Noon.	☽'s Declination at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	*Su.*	8	5. 47	301. 19	307. 47	15. 3 S	13. 44 S
2	M.	9	6. 35	314. 5	320. 14	12. 17	10. 42
3	Tu.	10	7. 21	326. 15	332. 9	9. 1	7. 16
4	W.	11	8. 5	337. 57	343. 40	5. 27	3. 36 S
5	Th.	12	8. 47	349. 20	354. 58	1. 43 S	0. 11 N
6	F.	13	9. 30	0. 35	6. 13	2. 4 N	3. 56
7	Sa.	14	10. 12	11. 52	17. 33	5. 46	7. 32
8	*Su.*	15	10. 55	23. 17	29. 5	9. 14	10. 50
9	M.	16	11. 40	34. 58	40. 56	12. 21	13. 44
10	Tu.	17	12. 26	47. 0	53. 9	14. 59	16. 4
11	W.	18	13. 15	59. 24	65. 44	16. 58	17. 42
12	Th.	19	14. 4	72. 8	78. 37	18. 14	18. 33
13	F.	20	14. 53	85. 10	91. 45	18. 38	18. 30
14	Sa.	21	15. 44	98. 22	105. 0	18. 8	17. 32
15	*Su.*	22	16. 35	111. 39	118. 17	16. 43	15. 41
16	M.	23	17. 25	124. 55	131. 33	14. 26	12. 58
17	Tu.	24	18. 16	138. 10	144. 47	11. 20	9. 32
18	W.	25	19. 7	151. 24	158. 3	7. 35	5. 30
19	Th.	26	19. 58	164. 44	171. 28	3. 20 N	1. 5 N
20	F.	27	20. 51	178. 16	185. 9	1. 13 S	3. 31 S
21	Sa.	28	21. 46	192. 9	199. 15	5. 47	8. 0
22	*Su.*	29	22. 43	206. 29	213. 51	10. 5	12. 2
23	M.	30	23. 42	221. 19	228. 54	13. 47	15. 19
24	Tu.	1	♂	236. 33	244. 16	16. 35	17. 34
25	W.	2	0. 42	251. 59	259. 40	18. 14	18. 36
26	Th.	3	1. 41	267. 17	274. 47	18. 39	18. 24
27	F.	4	2. 38	282. 8	289. 19	17. 53	17. 6
28	Sa.	5	3. 32	296. 19	303. 7	16. 5	14. 52
29	*Su.*	6	4. 23	309. 43	316. 9	13. 28	11. 56
30	M.	7	5. 10	322. 24	328. 30	10. 17	8. 32

Days of the Month.	Days of the Week.	Semidr. ☽ at Noon.	Semidr. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Midn.
		M. S.	M. S.	M. S.	M. S.		
1	*Su.*	15. 28	15. 21	56. 46	56. 21	5012	5044
2	M.	15. 15	15. 9	55. 58	55. 37	5073	5100
3	Tu.	15. 4	15. 0	55. 18	55. 2	5125	5146
4	W.	14. 56	14. 52	54. 47	54. 35	5166	5182
5	Th.	14. 50	14. 48	54. 25	54. 18	5195	5205
6	F.	14. 46	14. 45	54. 12	54. 9	5213	5217
7	Sa.	14. 45	14. 45	54. 7	54. 7	5219	5219
8	*Su.*	14. 45	14. 46	54. 8	54. 12	5218	5213
9	M.	14. 47	14. 49	54. 16	54. 22	5207	5199
10	Tu.	14. 50	14. 53	54. 28	54. 36	5191	5181
11	W.	14. 55	14. 58	54. 45	54. 56	5169	5154
12	Th.	15. 1	15. 4	55. 7	55. 19	5140	5124
13	F.	15. 8	15. 12	55. 32	55. 47	5107	5087
14	Sa.	15. 16	15. 21	56. 2	56. 18	5068	5048
15	*Su.*	15. 25	15. 30	56. 36	56. 55	5025	5000
16	M.	15. 36	15. 41	57. 14	57. 34	4976	4951
17	Tu.	15. 47	15. 53	57. 55	58. 17	4924	4897
18	W.	15. 59	16. 5	58. 38	59. 0	4871	4844
19	Th.	16. 10	16. 16	59. 21	59. 41	4819	4794
20	F.	16. 20	16. 26	60. 0	60. 17	4771	4751
21	Sa.	16. 29	16. 33	60. 31	60. 43	4734	4719
22	*Su.*	16. 35	16. 36	60. 51	60. 55	4711	4705
23	M.	16. 36	16. 35	60. 56	60. 52	4704	4709
24	Tu.	16. 33	16. 30	60. 44	60. 32	4718	4733
25	W.	16. 26	16. 20	60. 17	59. 57	4751	4775
26	Th.	16. 14	16. 8	59. 35	59. 10	4801	4832
27	F.	16. 0	15. 53	58. 44	58. 18	4864	4896
28	Sa.	15. 45	15. 38	57. 50	57. 23	4931	4965
29	*Su.*	15. 31	15. 24	56. 57	56. 31	4998	5031
30	M.	15. 17	15. 12	56. 7	55. 46	5062	5089

Diſtances of ☽'s Center from ☉, and from Stars eaſt of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	α Pegaſi.	50. 43. 30	49. 14. 6	47. 45. 21	46. 17. 16
2		39. 8. 33	37. 45. 24	36. 23. 18	35. 2. 14
3	α Arietis.	68. 39. 32	67. 9. 51	65. 40. 26	64. 11. 16
4		56. 49. 8	55. 21. 26	53. 53. 59	52. 26. 47
5		45. 14. 21	43. 48. 37	42. 23. 10	40. 58. 1
6		33. 57. 9	32. 34. 13	31. 11. 47	29. 49. 52
7	Aldebaran.	53. 44. 21	52. 15. 41	50. 47. 0	49. 18. 18
8		41. 54. 21	40. 25. 26	38. 56. 28	37. 27. 27
9		30. 1. 31	28. 32. 9	27. 2. 43	25. 33. 13
10		18. 4. 52			
10	Pollux.	61. 55. 51	60. 28. 9	59. 0. 25	57. 32. 40
11		50. 13. 51	48. 46. 6	47. 18. 24	45. 50. 46
12		38. 34. 11			
12	Regulus.	73. 44. 22	72. 12. 31	70. 40. 33	69. 8. 24
13		61. 25. 35	59. 52. 34	58. 19. 24	56. 46. 4
14		48. 57. 1	47. 22. 42	45. 48. 13	44. 13. 33
15		36. 17. 49	34. 42. 9	33. 6. 20	31. 30. 23
16		23. 29. 2			
16	Spica ♍	76. 44. 2	75. 5. 32	73. 26. 46	71. 47. 45
17		63. 28. 26	61. 47. 41	60. 6. 39	58. 25. 18
18		49. 53. 59			
15	The Sun.		121. 19. 22	119. 50. 15	118. 20. 55
16		110. 50. 33	109. 19. 41	107. 48. 33	106. 17. 9
17		98. 35. 54	97. 2. 46	95. 29. 20	93. 55. 36
18		86. 2. 19	84. 26. 43	82. 50. 48	81. 14. 33
19		73. 8. 28	71. 30. 17	69. 51. 48	68. 13. 0
20		59. 54. 23	58. 13. 47	56. 32. 54	54. 51. 45
21		46. 22. 12	44. 39. 36	42. 56. 49	41. 13. 51
26	ε Capricorni.	33. 20. 24	31. 33. 9	29. 46. 16	27. 59. 47
27		19. 13. 19	17. 29. 17	15. 45. 41	14. 2. 32
28	α Pegaſi.	55. 22. 19	53. 48. 18	52. 14. 58	50. 42. 20
29		43. 10. 36	41. 42. 48	40. 15. 57	38. 50. 4
30	α Arietis.	72. 36. 12	71. 3. 48	69. 31. 45	68. 0. 3
D. 1		60. 26. 43			

Diſtances of ☽'s Center from ☉, and from Stars eaſt of her.

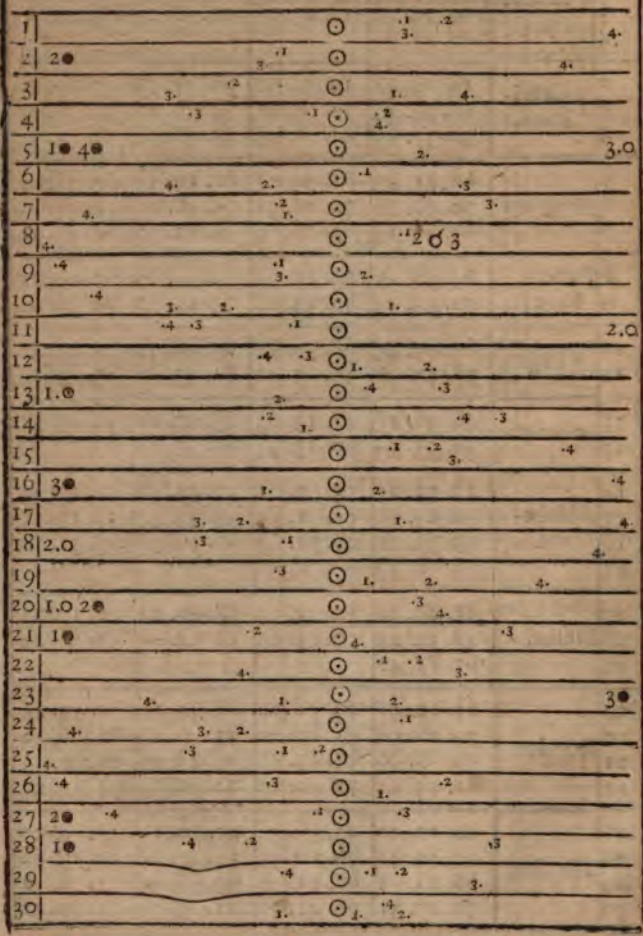
Days.	Stars Names.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	α Pegaſi.	44. 49. 54	43. 23. 18	41. 57. 29	40. 32. 32
2		33. 42. 15			
2		74. 40. 59	73. 1[illegible]. 12	71. 39. 42	70. 9. 29
3		62. 42. 21	61. 13. 41	59. 45. 15	58. 17. 4
4	α Arietis.	50. 59. 49	49. 33. 5	48. 6. 35	46. 40. 20
5		39. 33. 10	38. 8. 36	36. 44. 22	35. 20. 32
6		28. 28. 32			
6		59. 39. 0	58. 10. 21	56. 41. 41	55. 13. 1
7	Aldeba-	47. 49. 35	46. 20. 50	44. 52. 3	43. 23. 13
8	ran.	35. 58. 23	34. 29. 15	33. 0. 4	31. 30. 49
9		24. 3. 40	22. 34. 3	21. 4. 23	19. 34. 39
10	Pollux.	56. 4. 54	54. 37. 8	53. 9. 22	51. 41. 36
11		44. 23. 12	42. 55. 44	41. 28. 25	40. 1. 14
12		67. 36. 7	66. 3. 42	64. 31. 9	62. 58. 26
13	Regulus.	55. 12. 35	53. 38. 56	52. 5. 8	50. 31. 9
14		42. 38. 44	41. 3. 45	39. 28. 36	37. 53. 18
15		29. 54. 19	28. 18. 8	26. 41. 51	25. 5. 29
16	Spicæ ♍	70. 8. 27	68. 28. 52	66. 49. 1	65. 8. 52
17		56. 43. 39	55. 1. 42	53. 19. 26	51. 36. 52
15		116. 51. 20	115. 21. 31	113. 51. 27	112. 21. 8
16		104. 45. 28	103. 13. 31	101. 41. 16	100. 8. 44
17		92. 21. 34	90. 47. 14	89. 12. 34	87. 37. 36
18	The Sun.	79. 37. 59	78. 1. 5	76. 23. 52	74. 46. 19
19		66. 33. 53	64. 54. 27	63. 14. 44	61. 34. 43
20		53. 10. 21	51. 28. 40	49. 46. 44	48. 4. 35
21		39. 30. 43			
25	β Capri-	40. 33. 6	38. 44. 23	36. 56. 1	35. 8. 1
26	corni.	26. 13. 41	24. 27. 58	22. 42. 40	20. 57. 47
27		12. 19. 51			
27		61. 44. 36	60. 8. 9	58. 32. 16	56. 56. 59
28	α Pegaſi.	49. 10. 25	47. 39. 14	46. 8. 51	44. 39. 18
29		37. 25. 12			
29	α Arietis.	78. 49. 30	77. 15. 37	75. 42. 6	74. 8. 58
30		66. 28. 43	64. 57. 43	63. 27. 4	61. 56. 45

Distances of Moon's Center from ☉, and from Stars west of her.

Days	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	The Sun.	80. 39. 42	82. 8. 43	83. 37. 21	85. 5. 38
2		92. 21. 57	93. 48. 14	95. 14. 15	96. 39. 57
3		103. 44. 31	105. 8. 41	106. 32. 38	107. 56. 23
4		114. 52. 14	116. 14. 52	117. 37. 21	118. 59. 41
2	♑ Capricorni.	12. 6. 29	13. 40. 14	15. 13. 43	16. 46. 56
3		24. 29. 7	26. 0. 50	27. 32. 21	29. 3. 39
4		36. 37. 17	38. 7. 29	39. 37. 33	41. 7. 28
5		48. 35. 16			
5	♑ Aquilæ	55. 9. 35	56. 27. 13	57. 45. 8	59. 3. 18
6		65. 37. 37	66. 57. 5	68. 16. 42	69. 36. 29
7		76. 17. 30	77. 38. 2	78. 58. 40	80. 19. 24
8		87. 4. 24			
8	Fomalhaut.	56. 47. 49	58. 4. 48	59. 22. 10	60. 39. 55
9		67. 13. 49	68. 33. 28	69. 53. 21	71. 13. 30
10		77. 57. 36			
10	♑ Pegasi.	61. 23. 17	62. 48. 35	64. 14. 5	65. 39. 48
11		72. 51. 25	74. 18. 20	75. 45. 25	77. 12. 40
12		84. 31. 21			
12	α Arietis.	40. 53. 44	42. 21. 52	43. 50. 20	45. 19. 8
13		52. 47. 52	54. 18. 28	55. 49. 21	57. 20. 30
14		65. 0. 2			
14	Aldebaran.	31. 13. 15	32. 47. 58	34. 22. 54	35. 58. 4
15		43. 57. 3	45. 33. 32	47. 10. 16	48. 47. 15
16		56. 55. 48	58. 34. 18	60. 13. 5	61. 52. 8
17		70. 11. 38	71. 52. 25	73. 33. 30	75. 14. 54
18	Pollux.	41. 55. 22	43. 33. 50	45. 12. 53	46. 52. 32
19		55. 18. 34	57. 1. 12	58. 44. 17	60. 27. 47
20	Regulus.	32. 17. 36	34. 4. 52	35. 52. 32	37. 40. 34
21		46. 45. 47	48. 35. 42	50. 25. 52	52. 16. 17
22		61. 31. 27	63. 23. 1	65. 14. 42	67. 6. 30
23		76. 26. 30			
27	The Sun.	36. 1. 27	37. 37. 22	39. 12. 52	40. 47. 58
28		48. 37. 25	50. 10. 6	51. 42. 22	53. 14. 14
29		60. 47. 32	62. 16. 59	63. 46. 4	65. 14. 47
30		72. 32. 59	73. 59. 36	75. 25. 53	76. 51. 52
D. 1		83. 57. 13			

Diſtances of ☽'s Center from ☉, and from Stars weſt of her.

Days.	Stars Names.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	The Sun.	86. 33. 34	88. 1. 9	89. 28. 25	90. 55. 20
2		98. 5. 23	99. 30. 33	100. 55. 27	102. 20. 7
3		109. 19. 56	110. 43. 17	112. 6. 27	113. 29. 26
4		120. 21. 52			
2	β Capricorni.	18. 19. 52	19. 52. 32	21. 24. 58	22. 57. 10
3		30. 34. 44	32. 5. 38	33. 36. 22	35. 6. 55
4		42. 37. 15	44. 6. 55	45. 36. 28	47. 5. 55
5	α Aquilæ.	60. 21. 43	61. 40. 22	62. 59. 15	64. 18. 20
6		70. 56. 26	72. 16. 31	73. 36. 43	74. 57. 3
7		81. 40. 14	83. 1. 9	84. 22. 9	85. 43. 14
8	Fomalhaut.	61. 58. 3	63. 16. 32	64. 35. 19	65. 54. 25
9		72. 33. 53	73. 54. 29	75. 15. 19	76. 36. 21
10	α Pegaſi.	67. 5. 44	68. 31. 52	69. 58. 11	71. 24. 42
11		78. 40. 6	80. 7. 41	81. 35. 26	83. 3. 19
12	α Arietis.	46. 48. 16	48. 17. 43	49. 47. 28	51. 17. 31
13		58. 51. 54	60. 23. 33	61. 55. 28	63. 27. 38
14	Aldebaran.	37. 33. 27	39. 9. 1	40. 44. 48	42. 20. 49
15		50. 24. 28	52. 1. 55	53. 39. 37	55. 17. 35
16		63. 31. 28	65. 11. 4	66. 50. 58	68. 31. 9
17		76. 56. 37			
17	Pollux.	35. 28. 14	37. 3. 57	38. 40. 24	40. 17. 33
18		48. 32. 45	50. 13. 28	51. 54. 40	53. 36. 22
19		62. 11. 42			
19	Regulus.	25. 12. 53	26. 58. 22	28. 44. 20	30. 30. 45
20		39. 28. 58	41. 17. 42	43. 6. 46	44. 56. 8
21		54. 6. 56	55. 57. 47	57. 48. 49	59. 40. 3
22		68. 58. 24	70. 50. 22	72. 42. 23	74 34. 27
27	The Sun.	42. 22. 40	43. 56. 58	45. 30. 51	47. 4. 20
28		54. 45. 42	56. 16. 45	57. 47. 25	59. 17. 40
29		66. 43. 7	68. 11. 6	69. 38. 44	71. 6. 2
30		78. 17. 31	79. 42. 52	81. 7. 56	82. 32. 42

Configurations of the SATELLITES of JUPITER at 7 o' th' Clock in the Evening.

Days of the Month.	Days of the Week.	Sundays, Holidays, &c.
1	Tu.	
2	W.	
3	Th.	
4	F.	
5	Sa.	
6	*Su.*	*2d Sunday in Advent.*
7	M.	[Nicholas.
8	Tu.	Conception of V. Mary.
9	W.	
10	Th.	
11	F.	
12	Sa.	
13	*Su.*	*3d Sunday in Advent.*
14	M.	[Lucy.
15	Tu.	[ends.
16	W.	O Sapientia. Camb. Ter.
17	Th.	Oxford Term ends.
18	F.	
19	Sa.	
20	*Su.*	*4th Sunday in Advent.*
21	M.	*St. Thomas.*
22	Tu.	
23	W.	
24	Th.	
25	F.	*Chriſtmas-day.*
26	Sa.	*St. Stephen.*
27	*Su.*	*1ſt Sund. after Chriſtmas.*
28	M.	*Innocents.* [*St. John.*
29	Tu.	
30	W.	
31	Th.	Silveſter.

Phaſes of the Moon.

	D.	H.	M.
First Quarter —	1.	12.	59
Full Moon —	9.	17.	35
Laſt Quarter —	17.	1.	54
New Moon —	23.	19.	58
First Quarter —	31.	9.	57

Other Phenomena.

4. ☿ ☌ ♏ diff. Lat. 40′.
☾ ☍ ♓ 9ʰ. 18′.
☾ ☌ ♓ 14ʰ. 3′.

8. ☾ 1 ad ☌ ♉ Im. 12ʰ. 31′. Em. 13ʰ. 38′. * paſſes 8′. N. of ☽'s cent.
☾ 2 ad ☌ ♉ Im. 13ʰ. 6′. Em. 14ʰ. 23′. * paſſes 1′. N. of ☽'s center.
☾ ☍ ♉ 15ʰ. 26′.

13. ☾ 1 ad ☌ ♋ Im. 16ʰ. 1½′. Em. 16ʰ. 47′. * paſſes 12½′. N. of ☽'scent.
☾ 2 ad ☌ ♋ Im. 17ʰ. 20′. Em. 17ʰ. 49′. * paſſes 14½′. N. of ☽'s center.

14. ♂ Stationary.
☾ ☌ ♌ 7ʰ. 40′.
☾ ☍ ♌ 12ʰ. 19′.
☾ ☌ ♌ 21ʰ. 17′.

16. ☾ ☌ ♌ Im. 17ʰ. 19′. Em. 18ʰ. 18′. * paſſes 10′. N. of ☽'s cent.

20. ☉ enters ♑ at 17ʰ. 7′.
☾ ☌ ♀ 21ʰ. 33′. Occult.
☾ 4 ad ☌ ♎ 23ʰ. 18′.

21. ☾ ☌ ♎ 3ʰ. 10′.
☾ ☍ ♎ 7ʰ. 18′.

28. ☾ ☍ ♒ 1ʰ. 23′.

31. ☾ ☌ ♓ 16ʰ. 54′.
☾ ☌ ♓ 21ʰ. 39′.

Days of the Month.	Days of the Week.	Sun's Longitude.	Sun's Right Afc. in Time.	Sun's Declin. South.	Equat. of Time. Sub.	Diff.
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
1	Tu.	8. 9. 56. 21	16.33.10,3	21. 57. 56	10. 17, 4	23,7
2	W.	8. 10. 57. 18	16.37.30,5	22. 6. 42	9. 53, 7	24, 2
3	Th.	8. 11. 58. 15	16.41.51,4	22. 15. 2	9. 29, 5	24, 7
4	F.	8. 12. 59. 13	16.46.12,7	22. 22. 56	9. 4, 8	25, 3
5	Sa.	8. 14. 0. 12	16.50.34,6	22. 30. 23	8. 39, 5	25, 8
6	*Su.*	8. 15. 1. 11	16.54.57,0	22. 37. 25	8. 13, 7	26, 3
7	M.	8. 16. 2. 11	16.59.20,0	22. 44. 0	7. 47, 4	26, 7
8	Tu.	8. 17. 3. 11	17. 3.43,4	22. 50. 7	7. 20, 7	27, 1
9	W.	8. 18. 4. 12	17. 8. 7,1	22. 55. 48	6. 53, 6	27, 6
10	Th.	8. 19. 5. 14	17.12.31,3	23. 1. 2	6. 26, 0	27, 9
11	F.	8. 20. 6. 17	17.16.55,8	23. 5. 48	5. 58, 1	28, 3
12	Sa.	8. 21. 7. 21	17.21.20,8	23. 10. 7	5. 29, 8	28, 7
13	*Su.*	8. 22. 8. 25	17.25.46,0	23. 13. 58	5. 1, 1	28, 9
14	M.	8. 23. 9. 31	17.30.11,6	23. 17. 21	4. 32, 2	29, 2
15	Tu.	8. 24. 10. 37	17.34.37,4	23. 20. 17	4. 3, 0	29, 5
16	W.	8. 25. 11. 44	17.39. 3,5	23. 22. 44	3. 33, 5	29, 7
17	Th.	8. 26. 12, 52	17.43.29,8	23. 24. 43	3. 3, 8	29, 8
18	F.	8. 27. 14. 1	17.47.56,3	23. 26. 14	2. 34, 0	30, 0
19	Sa.	8. 28. 15. 11	17.52.23,0	23. 27. 17	2. 4, 0	30, 1
20	*Su.*	8. 29. 16. 21	17.56.49,7	23. 27. 51	1. 33, 9	30, 1
21	M.	9. 0. 17. 32	18. 1.16,5	23. 27. 57	1. 3, 8	30, 2
22	Tu.	9. 1. 18. 44	18. 5.43,3	23. 27. 35	0. 33, 6	30, 2
23	W.	9. 2. 19. 57	18.10.10,1	23. 26. 44	0. 3, 4	30, 2
24	Th.	9. 3. 21. 9	18.14.36,9	23. 25. 25	Ad: 26, 8	30, 0
25	F.	9. 4. 22. 21	18.19. 3,6	23. 23. 38	0. 56, 8	30, 0
26	Sa.	9. 5. 23. 34	18.23.30,2	23. 21. 22	1. 26, 8	29, 8
27	*Su.*	9. 6. 24. 46	18.27.56,5	23. 18. 38	1. 56, 6	29, 5
28	M.	9. 7. 25. 59	18.32.22,7	23. 15. 26	2. 26, 1	29, 3
29	Tu.	9. 8. 27. 11	18.36.48,7	23. 11. 46	2. 55, 4	29, 0
30	W.	9. 9. 28. 23	18.41.14,3	23. 7. 39	3. 24, 4	28, 7
31	Th.	9. 10. 29. 35	18.45.39,7	23. 3. 3	3. 53, 1	

Days of the Month.	Semidiameter of the Sun.	Time of D° passing the Meridian.	Hourly Motion of the Sun.	Logarithm of the Sun's Distance.	Place of the Moon's Node.
	M. S.	M. S.	M. S.		S. D. M.
1	16. 17,2	1. 10,3	2. 32,3	9. 993548	6. 17. 2
7	16. 18,0	1. 10,7	2. 32,5	9. 993195	6. 16. 43
13	16. 18,6	1. 11,0	2. 32,7	9. 992936	6. 16. 24
19	16. 19,0	1. 11,1	2. 32,8	9. 992774	6. 16. 5
25	16. 19,2	1. 11,1	2. 32,9	9. 992678	6. 15. 46

Eclipses of the SATELLITES of JUPITER.

I. Satellite. Emersions.		II. Satellite. Emersions.		III. Satellite.		
Days	H. M. S.	Days	H. M. S.	Days	H. M. S.	
1	22. 44. 11	4	12. 33. 49	7	18. 40. 21	I
3	17. 12. 27	8	1. 50. 11	7	22. 5. 31	E
5	11. 40. 41	11	15. 6. 20	14	22. 39. 11	I
7	6* 8. 56	15	4*22. 28	15	2. 3. 43	E
9	0. 37. 5	18	17. 38. 31	22	2. 37. 51	I
10	19. 5. 18	22	6*54. 31	22	6* 1. 41	E
12	13. 33. 23	25	20. 10. 29	29	6*36. 12	I
14	8* 1. 35	29	9. 26. 26	29	9. 59. 27	E
16	2. 29. 37					
17	20. 57. 47			IV. Satellite.		
19	15. 25. 52					
21	9. 53. 56			8	15. 12. 7	I
23	4*22. 1			8	19. 29. 9	E
24	22. 50. 1			25	9. 22. 20	I
26	17. 18. 12			25	13. 35. 2	E
28	11. 46. 16					
30	6*14. 24					

Days.	Heliocentric Longitude.	Heliocentric Latitude.	Geocentric Longitude.	Geocentric Latitude.	Declination.	Passage over Merid.
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
	MERCURY. Greatest Elong. 19d.					
1	9. 23. 16	6. 28 S	8. 22. 55	2. 7 S	25. 24 S	0. 55
7	10. 13. 4	6. 59	9. 1. 58	2. 18	25. 45	1. 9
13	11. 5. 58	6. 34	9. 10. 37	2. 10	25. 12	1. 21
19	0. 3. 15	4. 44	9. 18. 8	1. 37	23. 50	1. 27
25	1. 5. 50	1. 13	9. 22. 47	0. 27	21. 58	1. 20
	VENUS.					
1	4. 18. 11	3. 2 N	6. 27. 8	2. 13 N	8. 23 S	21. 11
7	4. 27. 56	3. 15	7. 4. 12	2. 17	10. 47	21. 12
13	5. 7. 41	3. 22	7. 11. 20	2. 16	13. 5	21. 13
19	5. 17. 26	3. 23	7. 18. 31	2. 12	15. 14	21. 15
25	5. 27. 10	3. 18	7. 25. 46	2. 5	17. 12	21. 17
	MARS.					
1	3. 7. 57	1. 25 N	4. 10. 24	2. 37 N	20. 10 N	16. 19
7	3. 10. 47	1. 28	4. 10. 56	2. 52	20. 16	15. 55
13	3. 13. 36	1. 31	4. 11. 1	3. 8	20. 30	15. 29
19	3. 16. 23	1. 34	4. 10. 37	3. 24	20. 52	15. 1
25	3. 19. 10	1. 37	4. 9. 43	3. 40	21. 22	14. 31
	JUPITER.					
1	11. 7. 0	1. 7 S	10. 25. 57	1. 6 S	13. 55 S	5. 20
7	11. 7. 32	1. 8	10. 26. 48	1. 5	13. 37	4. 57
13	11. 8. 5	1. 8	10. 27. 44	1. 4	13. 17	4. 35
19	11. 8. 37	1. 9	10. 28. 44	1. 3	12. 55	4. 12
25	11. 9. 10	1. 9	10. 29. 49	1. 3	12. 32	3. 49
	SATURN. □ 3d. 19h.					
1	5. 6. 37	1. 47 N	5. 12. 42	1. 47 N	8. 27 N	18. 22
7	5. 6. 50	1. 47	5. 12. 54	1. 48	8. 23	17. 57
13	5. 7. 2	1. 47	5. 13. 2	1. 50	8. 22	17. 31
19	5. 7. 15	1. 48	5. 13. 6	1. 51	8. 21	17. 5
25	5. 7. 28	1. 48	5. 13. 7	1. 53	8. 23	16. 38

Days of the Month.	Days of the Week.	Moon's Longitude at Noon.	Moon's Longitude at Midnight.	Moon's Latitude at Noon.	Moon's Latitude at Midn.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
1	Tu.	11. 3. 52. 51	11. 9. 59. 25	3. 36. 58 N	3. 12. 21 N
2	W.	11. 16. 2. 14	11. 22. 1. 45	2. 45. 49	2. 17. 39
3	Th.	11. 27. 58. 45	0. 3. 53. 54	1. 48. 13	1. 17. 48
4	F.	0. 9. 47. 50	0. 15. 41. 12	0. 46. 37 N	0. 15. 3 N
5	Sa.	0. 21. 34. 39	0. 27. 28. 41	0. 16. 37 S	0. 48. 14 S
6	*Su.*	1. 3. 23. 53	1. 9. 20. 41	1. 19. 19	1. 49. 40
7	M.	1. 15. 19. 31	1. 21. 20. 41	2. 18. 53	2. 46. 45
8	Tu.	1. 27. 24. 32	2. 3. 31. 17	3. 12. 52	3. 36. 56
9	W.	2. 9. 41. 4	2. 15. 54. 4	3. 58. 37	4. 17. 39
10	Th.	2. 22. 10. 12	2. 28. 29. 41	4. 33. 42	4. 46. 32
11	F.	3. 4. 52. 17	3. 11. 18. 6	4. 55. 52	5. 1. 32
12	Sa.	3. 17. 46. 59	3. 24. 18. 51	5. 3. 21	5. 1. 15
13	*Su.*	4. 0. 53. 38	4. 7. 31. 15	4. 55. 8	4. 45. 2
14	M.	4. 14. 11. 38	4. 20. 54. 46	4. 30. 55	4. 13. 1
15	Tu.	4. 27. 40. 34	5. 4. 29. 7	3. 51. 25	3. 26. 24
16	W.	5. 11. 20. 19	5. 18. 14. 17	2. 58. 13	2. 27. 14
17	Th.	5. 25. 11. 4	6. 2. 10. 34	1. 53. 53	1. 18. 36
18	F.	6. 9. 12. 56	6. 16. 18. 2	0. 41. 52 S	0. 4. 16 S
19	Sa.	6. 23. 25. 43	7. 0. 35. 53	0. 33. 36 N	1. 11. 7 N
20	*Su.*	7. 7. 48. 9	7. 15. 2. 8	1. 47. 39	2. 22. 32
21	M.	7. 22. 17. 20	7. 29. 33. 7	2. 55. 11	3. 24. 59
22	Tu.	8. 6. 48. 53	8. 14. 3. 37	3. 51. 26	4. 14. 2
23	W.	8. 21. 16. 42	8. 28. 27. 9	4. 32. 27	4. 46. 24
24	Th.	9. 5. 34. 9	9. 12. 37. 1	4. 55. 47	5. 0. 30
25	F.	9. 19. 35. 3	9. 26. 27. 43	5. 0. 40	4. 56. 28
26	Sa.	10. 3. 14. 35	10. 9. 55. 29	4. 48. 5	4. 35. 50
27	*Su.*	10. 16. 30. 18	10. 22. 59. 7	4. 20. 3	4. 1. 5
28	M.	10. 29. 22. 4	11. 5. 39. 28	3. 39. 22	3. 15. 15
29	Tu.	11. 11. 51. 49	11. 17. 59. 33	2. 49. 7	2. 21. 14
30	W.	11. 24. 3. 14	0. 0. 3. 36	1. 52. 6	1. 21. 55
31	Th.	0. 6. 1. 13	0. 11. 56. 51	0. 51. 5	0. 19. 51

Days of the Month.	Days of the Week.	☽'s Age.	☽'s Paſſage over Merid.	☽'s Right Aſcen. at Noon.	☽'s Right Aſcen. at Midn.	☽'s Declinat. at Noon.	☽'s Declinat. at Midn.
			H. M.	D. M.	D. M.	D. M.	D. M.
1	Tu.	8	5. 55	334. 28	340. 19	6. 44 S	4. 52 S
2	W.	9	6. 38	346. 5	351. 47	2. 58 S	1. 3 S
3	Th.	10	7. 20	357. 26	3. 4	0. 51 N	2. 44 N
4	F.	11	8. 2	8. 42	14. 21	4. 36	6. 25
5	Sa.	12	8. 45	20. 3	25. 48	8. 10	9. 50
6	*Su.*	13	9. 29	31. 37	37. 32	11. 25	12. 53
7	M.	14	10. 14	43. 33	49. 40	14. 14	15. 26
8	Tu.	15	11. 1	55. 53	62. 13	16. 28	17. 20
9	W.	16	11. 50	68. 39	75. 10	18. 0	18. 27
10	Th.	17	12. 40	81. 45	88. 25	18. 41	18. 41
11	F.	18	13. 31	95. 7	101. 51	18. 27	17. 59
12	Sa.	19	14. 22	108. 35	115. 18	17. 16	16. 20
13	*Su.*	20	15. 13	122. 1	128. 41	15. 11	13. 49
14	M.	21	16. 3	135. 20	141. 56	12. 16	10. 32
15	Tu.	22	16. 53	148. 31	155. 6	8. 40	6. 40
16	W.	23	17. 43	161. 39	168. 14	4. 34	2. 24 N
17	Th.	24	18. 34	174. 50	181. 28	0. 10 N	2. 4 S
18	F.	25	19. 26	188. 11	194. 59	4. 18 S	6. 29
19	Sa.	26	20. 19	201. 53	208. 54	8. 35	10. 35
20	*Su.*	27	21. 15	216. 2	223. 16	12. 26	14. 6
21	M.	28	22. 13	230. 39	238. 7	15. 32	16. 44
22	Tu.	29	23. 11	245. 39	253. 14	17. 40	18. 18
23	W.	1	♂	260. 49	268. 22	18. 39	18. 41
24	Th.	2	0. 9	275. 51	283. 13	18. 25	17. 53
25	F.	3	1. 5	290. 27	297. 31	17. 4	16. 2
26	Sa.	4	1. 58	304. 24	311. 7	14. 47	13. 21
27	*Su.*	5	2. 48	317. 38	324. 0	11. 46	10. 4
28	M.	6	3. 35	330. 12	336. 15	8. 17	6. 25
29	Tu.	7	4. 20	342. 12	348. 2	4. 31	2. 35 S
30	W.	8	5. 3	353. 48	359. 31	0. 39 S	1. 17 N
31	Th.	9	5. 45	5. 11	10. 51	3. 11 N	5. 1

Days of the Month.	Days of the Week.	Semidr. ☽ at Noon.	Semidr. ☽ at Midnight.	Hor. Par. ☽ at Noon.	Hor. Par. ☽ at Midnight.	Proport. Logar. at Noon.	Proport. Logar. at Mid.
		M. S.	M. S.	M. S.	M. S.		
1	Tu.	15. 6	15. 1	55. 26	55. 8	5115	5138
2	W.	14. 58	14. 54	54. 54	54. 41	5157	5174
3	Th.	14. 51	14. 49	54. 31	54. 24	5187	5197
4	F.	14. 48	14. 47	54. 19	54. 16	5203	5207
5	Sa.	14. 47	14. 48	54. 16	54. 17	5207	5206
6	*Su.*	14. 49	14. 50	54. 21	54. 27	5201	5193
7	M.	14. 52	14. 54	54. 34	54. 42	5183	5173
8	Tu.	14. 57	15. 0	54. 53	55. 4	5158	5144
9	W.	15. 4	15. 7	55. 16	55. 29	5128	5111
10	Th.	15. 11	15. 14	55. 42	55. 56	5094	5076
11	F.	15. 19	15. 22	56. 11	56. 25	5056	5038
12	Sa.	15. 27	15. 31	56. 41	56. 56	5018	4999
13	*Su.*	15. 35	15. 39	57. 11	57. 26	4980	4961
14	M.	15. 43	15. 47	57. 40	57. 56	4943	4923
15	Tu.	15. 51	15. 55	58. 10	58. 25	4906	4887
16	W.	15. 59	16. 3	58. 39	58. 53	4870	4853
17	Th.	16. 6	16. 10	59. 7	59. 19	4835	4821
18	F.	16. 13	16. 16	59. 31	59. 41	4806	4794
19	Sa.	16. 18	16. 20	59. 50	59. 58	4783	4773
20	*Su.*	16. 22	16. 22	60. 3	60. 5	4768	4765
21	M.	16. 23	16. 22	60. 5	60. 3	4765	4768
22	Tu.	16. 20	16. 18	59. 57	59. 49	4775	4784
23	W.	16. 15	16. 11	59. 37	59. 23	4799	4816
24	Th.	16. 6	16. 1	59. 6	58. 46	4837	4861
25	F.	15. 55	15. 49	58. 26	58. 3	4886	4915
26	Sa.	15. 43	15. 37	57. 40	57. 17	4943	4972
27	*Su.*	15. 30	15. 24	56. 53	56. 30	5003	5032
28	M.	15. 18	15. 12	56. 9	55. 48	5059	5086
29	Tu.	15. 7	15. 3	55. 29	55. 13	5111	5132
30	W.	14. 59	14. 55	54. 59	54. 46	5150	5167
31	Th.	14. 53	14. 51	54. 37	54. 30	5179	5189

Distances of ☽'s Center from Stars, and from ☉ east of her.

Days.	Stars Names.	Noon.	3 Hours.	6 Hours.	9 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
1		60. 26. 43	58. 57. 7	57. 27. 49	55. 58. 49
2	α Arietis.	48. 38. 29	47. 11. 23	45. 44. 37	44. 18. 12
3		37. 11. 21			
3		68. 56. 36	67. 27. 26	65. 58. 21	64. 29. 21
4		57. 5. 24	55. 36. 45	54. 8. 6	52. 39. 29
5	Aldebaran.	45. 16. 17	43. 47. 35	42. 18. 50	40. 50. 2
6		33. 25. 7	31. 55. 54	30. 26. 36	28. 57. 13
7		21. 28. 52	19. 58. 55	18. 28. 53	16. 58. 46
8	Pollux.	53. 30. 46	52. 2. 18	50. 33. 50	49. 5. 22
9		41. 43. 11	40. 14. 56	38. 46. 48	37. 18. 48
10		64. 38. 11	63. 4. 12	61. 30. 2	59. 55. 42
11		52. 1. 30	50. 26. 8	48. 50. 36	47. 14. 55
12	Regulus.	39. 14. 12	37. 37. 38	36. 0. 56	34. 24. 7
13		26. 18. 36	24. 41. 20	23. 4. 6	21. 26. 57
14		13. 25. 36			
14		66. 23. 55	64. 43. 42	63. 3. 18	61. 22. 43
15		52. 57. 6	51. 15. 24	49. 33. 31	47. 51. 27
16	Spica ♍	39. 18. 26	37. 35. 17	35. 51. 58	34. 8. 28
17		25. 28. 29	23. 44. 4	21. 59. 33	20. 14. 57
15		116. 26. 10	114. 52. 22	113. 18. 22	111. 44. 10
16		103. 50. 17	102. 14. 54	100. 39. 20	99. 3. 34
17		91. 1. 46	89. 24. 51	87. 47. 44	86. 10. 26
18	The Sun.	78. 1. 8	76. 22. 44	74. 44. 10	73. 5. 27
19		64. 49. 33	63. 9. 56	61. 30. 11	59. 50. 20
20		51. 29. 33	49. 49. 9	48. 8. 44	46. 28. 16
25		60. 46. 29	59. 9. 23	57. 32. 48	55. 56. 46
26	α Pegasi.	48. 6. 7	46. 34. 5	45. 2. 51	43. 32. 27
27		36. 15. 1	34. 50. 57	33. 28. 16	32. 7. 4
28		64. 52. 57	63. 20. 29	61. 48. 23	60. 16. 40
29	ε Arietis.	52. 43. 41	51. 14. 13	49. 45. 9	48. 16. 28
30		40. 59. 11			
30		72. 50. 57	71. 20. 20	69. 49. 54	68. 19. 39
31	Aldebaran.	60. 50. 54	59. 21. 33	57. 52. 18	56. 23. 9
J. 1		48. 58. 39			

Diſtances of ☽'s Center from Stars, and from ☉ eaſt of her.

Days.	Stars Names.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
1	α Arietis.	54. 30. 7	53. 1. 44	51. 33. 40	50. 5. 55
2		42. 52. 7	41. 26. 23	40. 1. 1	38. 36. 1
3	Aldebaran.	63. 0. 27	61. 31. 37	60. 2. 50	58. 34. 5
4		51. 10. 52	49. 42. 15	48. 13. 37	46. 44. 57
5		39. 21. 11	37. 52. 16	36. 23. 17	34. 54. 14
6		27. 27. 45	25. 58. 10	24. 28. 29	22. 58. 43
7		15. 28. 34			
7	Pollux.	59. 23. 59	57. 55. 45	56. 27. 28	54. 59. 9
8		47. 36. 54	46. 8. 25	44. 39. 57	43. 11. 32
9		35. 50. 58			
9	Regulus.	70. 52. 14	69. 19. 1	67. 45. 35	66. 11. 59
10		58. 21. 11	56. 46. 31	55. 11. 41	53. 36. 41
11		45. 39. 4	44. 3. 4	42. 26. 55	40. 50. 38
12		32. 47. 11	31. 10. 9	29. 33. 2	27. 55. 50
13		19. 49. 58	18. 13. 11	16. 36. 47	15. 0. 53
14	Spica ♍	59. 41. 58	58. 1. 2	56. 19. 54	54. 38. 36
15		46. 9. 12	44. 26. 47	42. 44. 11	41. 1. 24
16		32. 24. 48	30. 40. 56	28. 56. 56	27. 12. 47
17		18. 30. 15			
14	The Sun.		121. 6. 20	119. 33. 9	117. 59. 46
15		110. 9. 46	108. 35. 11	107. 0. 25	105. 25. 27
16		97. 27. 36	95. 51. 26	94. 15. 4	92. 38. 31
17		84. 32. 57	82. 55. 16	81. 17. 24	79. 39. 21
18		71. 26. 34	69. 47. 32	68. 8. 21	66. 29. 1
19		58. 10. 21	56. 30. 16	54. 50. 6	53. 9. 52
20		44. 47. 47	43. 7. 17	41. 26. 48	39. 46. 20
25	α Pegaſi.	54. 21. 20	52. 46. 30	51. 12. 21	49. 38. 53
26		42. 2. 56	40. 34. 20	39. 6. 45	37. 40. 18
27		30. 47. 30			
27	α Arietis.	71. 6. 38	69. 32. 39	67. 59. 2	66. 25. 48
28		58. 45. 19	57. 14. 21	55. 43. 45	54. 13. 32
29		46. 48. 12	45. 20. 20	43. 52. 52	42. 25. 49
30	Aldebaran.	66. 49. 36	65. 19. 43	63. 49. 58	62. 20. 22
31		54. 54. 6	53. 25. 8	51. 56. 14	50. 27. 24

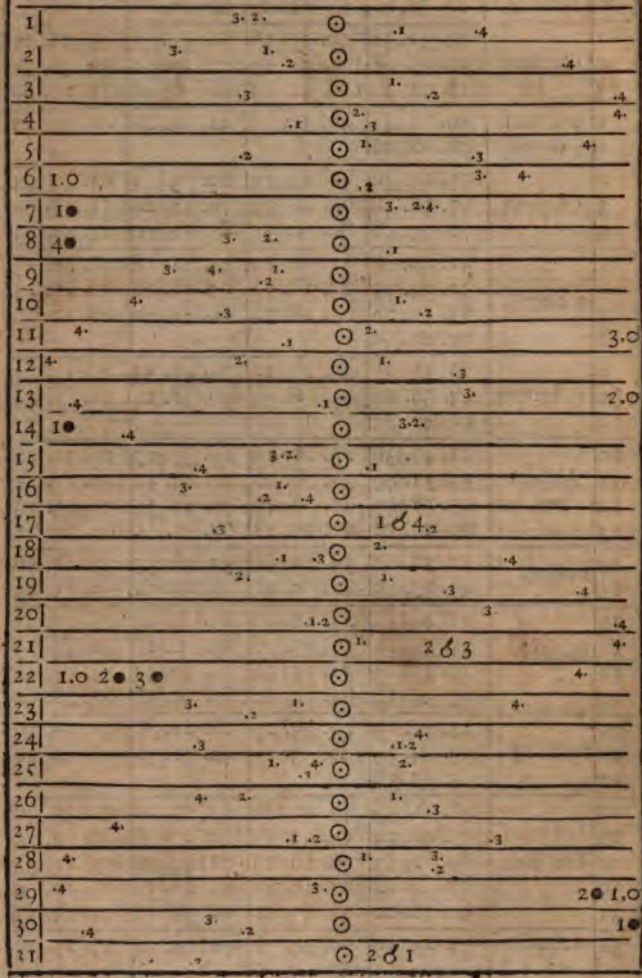
Distances of ☽'s Center from ☉, and from Stars west of her.

Days.	Stars Names.	Noon. D. M. S.	3 Hours. D. M. S.	6 Hours. D. M. S.	9 Hours. D. M. S.
1	The Sun.	83. 57. 13	85. 21. 25	86. 45. 23	88. 9. 7
2		95. 4. 35	96. 27. 4	97. 49. 22	99. 11. 29
3		106. 0. 1	107. 21. 21	108. 42. 36	110. 3. 45
4		116. 48. 27	118. 9. 14	119. 30. 0	120. 50. 45
2	β Capric.	45. 6. 1	46. 36. 20	48. 6. 29	49. 36. 28
3	α Aquilæ.	62. 40. 59	64. 0. 13	65. 19. 36	66. 39. 8
4		73. 18. 36	74. 38. 48	75. 59. 6	77. 19. 29
5		84. 2. 42			
5	α Pegasi.	36. 25. 9	37. 42. 55	39. 1. 22	40. 20. 27
6		47. 4. 5	48. 26. 12	49. 48. 44	51. 11. 38
7		58. 11. 19	59. 36. 11	61. 1. 20	62. 26. 45
8		69. 37. 53	71. 4. 51	72. 32. 4	73. 59. 30
9	α Arietis.	37. 43. 17	39. 11. 21	40. 39. 54	42. 8. 53
10		49. 39. 36	51. 10. 48	52. 42. 18	54. 14. 7
11	Aldebaran.	28. 8. 2	29. 43. 40	31. 19. 31	32. 55. 34
12		40. 58. 46	42. 35. 59	44. 13. 24	45. 51. 0
13		54. 1. 52	55. 40. 37	57. 19. 32	58. 58. 39
14		67. 17. 5			
14	Pollux.	26. 31. 46	28. 1. 41	29. 32. 46	31. 4. 56
15		38. 57. 55	40. 34. 28	42. 11. 31	43. 49. 5
16		52. 3. 16			
16	Regulus.	15. 2. 54	16. 42. 13	18. 22. 23	20. 3. 19
17		28. 35. 51	30. 19. 31	32. 3. 29	33. 47. 44
18		42. 33. 3	44. 18. 59	46. 4. 49	47. 51. 1
19		56. 44. 48	58. 32. 6	60. 19. 33	62. 7. 9
20		71. 7. 5			
20	Spica ♍	17. 32. 51	19. 20. 38	21. 8. 36	22. 56. 44
21		31. 59. 21	33. 48. 5	35. 36. 50	37. 25. 37
22		46. 29. 17	48. 17. 51	50. 6. 20	51. 54. 42
27	The Sun.	40. 17. 10	41. 46. 20	43. 15. 10	44. 43. 41
28		52. 1. 34	53. 28. 13	54. 54. 34	56. 20. 38
29		63. 26. 43	64. 51. 7	66. 15. 17	67. 39. 12
30		74. 35. 21	75. 57. 58	77. 20. 25	78. 42. 41
31		85. 31. 49	86. 53. 4	88. 14. 22	89. 35. 34
J. 1		96. 20. 21			
31	α Aquilæ.	70. 1. 35	71. 22. 0	72. 42. 28	74. 2. 57
J. 1		80. 45. 55			

Distances of ☽'s Center from ☉, and from Stars west of her.

Days	Stars Names.	12 Hours.	15 Hours.	18 Hours.	21 Hours.
		D. M. S.	D. M. S.	D. M. S.	D. M. S.
1		89. 32. 38	90. 55. 56	92. 19. 1	93. 41. 54
2	The Sun.	100. 33. 28	101. 55. 18	103. 17. 0	104. 38. 34
3		111. 24. 40	112. 45. 49	114. 6. 45	115. 27. 38
1	β Capri-	39. 2. 45	40. 33. 52	42. 4. 47	43. 35. 30
2	corni.	51. 6. 16			
2		57. 25. 49	58. 44. 19	60. 3. 1	61. 21. 54
3	α Aquilæ.	67. 58. 48	69. 18. 35	70. 38. 29	71. 58. 29
4		78. 39. 58	80. 0. 32	81. 21. 10	82. 41. 53
5		41. 40. 8	43. 0. 22	44. 21. 8	45. 42. 23
6	α Pegasi.	52. 34. 55	53. 58. 32	55. 22. 28	56. 46. 44
7		63. 52. 28	65. 18. 26	66. 44. 40	68. 11. 9
8		75. 27. 9			
8		31. 56. 27	33. 22. 17	34. 48. 43	36. 15. 44
9	α Arietis.	43. 38. 19	45. 8. 6	46. 38. 14	48. 8. 44
10		55. 46. 13			
10		21. 47. 36	23. 22. 23	24. 57. 23	26. 32. 36
11	Aldeba-	34. 31. 49	36. 8. 16	37. 44. 54	39. 21. 44
12	ran.	47. 28. 47	49. 6. 46	50. 44. 57	52. 23. 19
13		60. 37. 58	62. 17. 28	63. 57. 9	65. 37. 1
14	Pollux.	32. 38. 2	34. 11. 56	35. 46. 35	37. 21. 56
15		45. 27. 9	47. 5. 38	48. 44. 30	50. 23. 43
16		21. 44. 53	23. 26. 59	25. 9. 33	26. 52. 31
17	Regulus.	35. 32. 16	37. 17. 6	39. 2. 10	40. 47. 29
18		49. 37. 24	51. 23. 59	53. 10. 44	54. 57. 41
19		63. 54. 54	65. 42. 47	67. 30. 46	69. 18. 52
20		24. 45. 3	26. 33. 29	28. 22. 1	30. 10. 39
21	Spica ♍	39. 14. 24	41. 3. 11	42. 51. 56	44. 40. 38
22		53. 42. 56			
27		46. 11. 53	47. 39. 46	49. 7. 20	50. 34. 36
28		57. 46. 24	59. 11. 53	60. 37. 6	62. 2. 3
29	The Sun.	69. 2. 53	70. 26. 19	71. 49. 32	73. 12. 35
30		80. 4. 47	81. 26. 43	82. 48. 30	84. 10. 9
31		90. 56. 40	92. 17. 41	93. 38. 38	94. 59. 31
31	α Aquilæ.	75. 23. 29	76. 44. 2	78. 4. 38	79. 25. 15

Configurations of the SATELLITES of JUPITER at 6 o'th' Clock in the Evening.



EXPLANATION and USE

OF THE

ARTICLES

Contained in the

ASTRONOMICAL and NAUTICAL EPHEMERIS.

IT may be proper firſt to premiſe, that all the Calculations are made according to apparent Time by the Meridian of the Royal Obſervatory at Greenwich. They are likewiſe adapted to apparent Noon, except where they are otherwiſe diſtinguiſhed, as the Eclipſes and Configurations of Jupiter's Satellites, the Moon's Places, &c, computed for Midnight, and the Diſtances of the Moon from the Sun and Stars for every third Hour; which are all computed to the apparent Times ſet down.

Apparent Time is that deduced immediately from the Sun, whether from the Obſervation of his paſſing the Meridian, from his Altitude obſerved at a Diſtance from the Meridian, or from his obſerved Riſing or Setting. This Time is different from that ſhewn by Clocks and Watches well regulated at Land, which is called equated or mean Time. This will be explained when we come to treat of the Equation of Time.

The Day is here ſuppoſed, according to the Method of Aſtronomers, to begin at Noon, or 12 Hours later than the civil Day of the ſame Denomination, and to be counted up to 24 Hours, or the ſucceeding Noon, when the next Day begins. Thus the Day of the Month and the Hour of the Day are the ſame in this Method as in the civil Account at Noon, and from Noon till Midnight; but from Midnight till Noon they

differ; for whereas in the civil Account a freſh Day is ſuppoſed to begin at Midnight, and the Hours to begin over again, in this Method the Day is ſtill continued beyond Midnight, and the Reckoning of the Hours is continued up to 24. Thus the Diſtances put down to January 10, 15 Hours, belong to January 11 at Three in the Morning by civil Reckoning.

There are 12 Pages for every Month. The firſt Column of the firſt Page of each Month contains the Day of the Month; the Second, the Day of the Week expreſſed conciſely by the initial Letter or Letters, *Su.* ſtanding for Sunday, M. for Monday, Tu. for Tueſday, W. for Wedneſday, Th. for Thurſday, F. for Friday, and Sa. for Saturday: The third Column exhibits the Sundays and Feſtivals of the Church of England, and other remarkable Days: The laſt Column ſhews at Top the Moon's Phaſes, or the Times of new and full Moon, and of the firſt and laſt Quarter, or two Quadratures with the Sun: Beneath are contained miſcellaneous Phænomena, namely, Eclipſes of the Sun and Moon, and Occultations of Planets or fixed Stars not leſs than the fourth Magnitude, by the Moon, as they ſhould happen at Greenwich by the Tables; the Conjunctions of the Moon with all Stars not leſs than the fourth Magnitude, which can be Occultations any where on the Globe, between the Latitudes of 60°. North and 40°. South: The Conjunctions, Oppoſitions and Quadratures of the ſuperior Planets with the Sun; and the Conjunctions and greateſt Elongations of the inferior Planets from the Sun, the Entrance of the Sun into the ſeveral Signs, and any other remarkable Phænomena.

The Stars are expreſſed by Bayer's Characters of Reference. The Conjunction of the Moon or a Planet with a Star, is denoted by prefixing the Character of the Moon or Planet to that of the Star, the Time of the Conjunction being placed immediately after. The Caſe is the ſame with Reſpect to the Occultation of a Star or Planet by the Moon, only this is further diſtinguiſhed by the Addition of Im. or Immerſion, to ſignify the Diſappearance behind the Moon; and Em. or Emerſion, to ſignify the Re-appearance of the ſame. Thus 8ᵈ ☽ ♂ ♍ 16ʰ. 22′. ſignifies that the Moon will be in Conjunction with the Star ♂ ♍ on the Eighth Day at 16ʰ. 22′. excluſive of Parallax: And 10ᵈ. ☽ ε ♊ Imm. 9ʰ 14′. Em. 10ʰ. 23′ ſignifies that the Moon will eclipſe ε ♊ on the 10th Day, the Immerſion being at 9ʰ 14′. and at 10ʰ. 23′. apparent Time at Greenwich.

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The Occultations ſet down are thoſe only viſible at Greenwich; and the Circumſtances will not differ very widely in moſt Parts of the Kingdom; but in very diſtant Places they will differ very much, owing to the Change of the Moon's Parallax, or it may become no Occultation at all: The like may be ſaid of Eclipſes of the Sun.

Eclipſes of the Sun, and Occultations of fixed Stars by the Moon, if obſerved in Places whoſe Latitude and Longitude are well determined, may be applied to the Correction of the lunar Tables; but if made in Places whoſe Latitude only is well known, may be applied to the Determination of the Longitude of the Place; but for this Purpoſe an accurate Calculation muſt be made of the Moon's Parallaxes in Longitude and Latitude, which makes this Method of ſettling the Longitudes of Places, though a very accurate one, leſs convenient in Uſe for Perſons not much verſed in aſtronomical Calculations. However, this ought not to diſcourage Travellers or Mariners from endeavouring to make theſe Obſervations as often and as carefully as poſſible, when they ſhall happen to be at any Place whoſe Longitude they have Reaſon to think has not been at all or but indifferently determined; ſince the neceſſary Calculations may be made at any Time afterwards by themſelves, at leiſure, or referred to the Skill of Aſtronomers and Mathematicians.

Eclipſes of the Moon are not liable to this Inconvenience; the Longitude of any Place, where an Eclipſe has been obſerved, being deduced immediately by taking the Difference of the Time of the Obſervation and that ſet down in the Ephemeris, and converting it into Degrees, at the Rate of 15 to One Hour, *&c.* or more briefly by Table Pages 6. 7, 8. of the Tables requiſite to be uſed with the Ephemeris. But as the Beginning or Ending of an Eclipſe of the Moon cannot be generally obſerved nearer than One Minute, and ſometimes Two or Three Minutes of Time, the Longitudes of Places cannot be certainly determined by this Method from a ſingle Obſervation of the Beginning or End nearer than a Degree. It is unneceſſary to mention that even this Point of Exactneſs will often be of great Service. If both the Beginning and End of the Eclipſe be obſerved, a conſiderably greater Degree of Exactneſs will be attained.

The Conjunctions of the Moon with the Planets, or fixed Stars not leſs than the fourth Magnitude, which may prove Occultations in ſome inhabited Parts of the Globe, are evidently deſigned to inſtruct Mariners or Travellers to look out

frequently for ſuch Obſervations; which if they happen to prove Occultations, and are carefully obſerved, will afford a certain Means of determining the Longitude of the Place of Obſervation.

The Days of the Oppoſitions, Quadratures, &c. of the Planets with Reſpect to the Sun, are Times at which they ought to be obſerved in fixed Obſervatories, for ſettling the Elements of their Orbits by a Series of ſeveral Years Obſervations.

The Two firſt Columns of the Second Page of the Month contain the Day of the Month and Week as before; next follow the Sun's Longitude, right Aſcenſion in Time, Declination, and the Equation of Time, with the Difference from Day to Day.

The Longitude of the Sun is made uſe of in moſt of the ſucceeding Calculations of the Ephemeris, and may ſerve either to verify them, or to make other ſimilar Calculations at a different Time of the Day. Particularly it may ſerve with the Help of the Moon's Longitude, to find the Diſtance of the Moon from the Sun at any Time, independent of the Diſtances contained in the Four laſt Pages of the Month. To find the Sun's Longitude at any Time different from Noon, Proportion muſt be made according to its daily Increaſe: Saying as 24^h. is to the Hour from Noon reckoned by the Meridian of Greenwich, ſo is the daily Variation of the Sun's Longitude, to a fourth Number; which added to the Sun's Longitude at the preceding Noon, gives the true Longitude at the given Time.

If the Time given be that of a Meridian different from Greenwich, it muſt be firſt reduced thereto, by adding or ſubſtracting the Difference of Longitude turned into Time (at the Rate of One Hour to 15°, and One Minute of Time to 15 Minutes, or more briefly by Pages 6, 7, and 8, of the requiſite Tables) according as the Place is to the Weſt or to the Eaſt of Greenwich. Example: Suppoſe any one ſhould want to know the Sun's Longitude, January 19, 1767, at 4^h. $35'$. being in 21° 15′. Longitude Eaſt of Greenwich. The Difference of Longitude turned into Time by Table Page 6, is 1^h. $25'$ which ſubſtracted from 4^h. $35'$. becauſe the Place is Eaſt of Greenwich, leaves 3^h. $10'$. for the Time reduced to the Meridian of Greenwich. The Sun's Longitude the preceding Noon is, 9^s. 29°. 18′. 2″. and the following Noon is, 10^s. 0°. 19′. 4″. the Difference is, 1°. 1′. 2″. or 61′.2″. the daily Variation. Then ſay, as 24^h. is to 3^h. $10'$. ſo is 61′ 2″ to 8′. 3″. which added to 9^s. 29°. 18′. 2″. the Sun's Longitude on the preceding

preceding Noon, gives 9ˢ. 29°. 26′. 5″ the Sun's Longitude at the Time given. In like Manner any other of the following Articles is to be found by the Help of the Ephemeris.

The Sun's Longitude ſerves alſo to compute the Aberration of the fixed Stars and Planets.

The Sun's right Aſcenſion in Time is uſeful to the practical Aſtronomer in regular Obſervatories, who adjuſts his Clocks by ſidereal Time. It is alſo uſeful to him for converting apparent into ſidereal Time; as ſuppoſe that of an Eclipſe of Jupiter's Satellites, in order to know at what Time it may be expected to happen by his Clocks: For this Purpoſe, the Sun's right Aſcenſion at the preceding Noon, together with the Increaſe of right Aſcenſion from Noon, muſt be added to the apparent Time of the Phænomenon ſet down in the Ephemeris.

The Sun's right Aſcenſion in Time ſerves alſo to compute the apparent Time of a known Star's paſſing the Meridian: Thus ſubſtract the Sun's right Aſcenſion in Time at Noon from the Star's right Aſcenſion in Time, the Remainder is the apparent Time of the Star's paſſing the Meridian nearly; from which the proportional Part of the daily Increaſe of the Sun's right Aſcenſion for this apparent Time from Noon being ſubſtracted, leaves the correct Time of the Star's paſſing the Meridian.

Hence the apparent Time may be found from an obſerved Altitude of a known fixed Star, ſuppoſe one contained Page 12 or 13 of the requiſite Tables; as will be explained hereafter.

The Sun's right Aſcenſion in Time is alſo uſeful for computing the Time of the Moon and Planets paſſing the Meridian, as will be ſhewn under their proper Articles.

The Sun's Declination is neceſſary to find the Latitude, whether at Sea or Land, from the Meridian Altitude obſerved; it is alſo requiſite for finding the Latitude from Two Altitudes obſerved with the Interval of Time meaſured by a Watch; it ſerves for computing the Sun's Azimuth, having his Altitude and the Latitude of the Place given, in order to find the Variation of the Compaſs; it is required jointly with the Latitude of the Place and the Sun's horary Angle to compute his Altitude, if neglected to be obſerved at the Time of taking the Moon's Diſtance from the Sun for finding the Longitude, being uſeful to facilitate the Calculation of the Effect of Refraction and Parallax upon the Diſtance; it is alſo neceſſary to calculate the apparent Time from an obſerved Altitude of the Sun at a Diſtance

from

from the Meridian, the Latitude being given; or to compute the Time of the Sun's Setting or Riſing; which, though a leſs accurate Method than the former of obtaining the Time, may yet be uſeful when that cannot be had. For any of theſe Purpoſes, the Sun's Declination muſt be found to the Time given nearly reduced to the Meridian of Greenwich, making Proportion according to the daily Increaſe or Decreaſe, in like Manner as was ſhewn with Reſpect to the Sun's Longitude.

The Equation of Time is a Correction, which added to or ſubſtracted from the apparent Time (according to its Title at the Top of the Column) gives equated or mean Time, or that which ſhould be ſhewn by a good Clock or Watch. Apparent Time is that which takes its Beginning from the Paſſage of the Sun's Centre over the Meridian of any Place; and had the Sun no Motion in the Ecliptic, or was his Motion reduced to the Equator or in right Aſcenſion uniform, he would always return to the Meridian after equal Intervals of Time. But his apparent Motion in the Ecliptic being continually varying, and his Motion in right Aſcenſion being rendered further unequal on Account of the Obliquity of the Ecliptic to the Equator, from theſe Cauſes it ariſes that the Intervals of his Return to the Meridian become unequal, and the Sun will gradually come too ſlow or too ſoon to the Meridian for an equable Motion, ſuch as that of Clocks and Watches ought to be.

This Retardation or Acceleration of the Sun's coming to the Meridian is called the Equation of Time, and is contained in the laſt Column but One of Page 2d; and when applied according to its Title to the Apparent Time, or that deduced immediately from the Sun, gives the mean or equated Time, whence the Error of a Clock or Watch may be found, and, if required, it may be corrected.

If it is propoſed to convert mean Time into apparent, this is done by a contrary Proceſs, by applyi g the Equation of Time to the mean Time given, with its Title or Sign changed; *viz.* ſubſtracting inſtead of adding, and adding inſtead of ſubſtracting.

The Equation of Time being ſet down in the Ephemeris for the Noon at Greenwich, Proportion muſt be made according to the daily Difference, to find what it ſhould be at any given Time reduced to the ſame Meridian, as in the preceding Articles. The laſt Column of this Page, containing the daily Differences of the Equation, is deſigned for this Purpoſe.

As

As often at it may be required to make any Calculations from aſtronomical Tables, and the Time given be apparent Time; it is neceſſary firſt to apply the Equation of Time thereto to convert it into mean Time, the Tables being diſpoſed according to mean Motions. Thus the Articles contained in the Ephemeris anſwering to Noon were computed to 0^h. increaſed, or 24 Hours diminiſhed, by the Equation of Time: And the Moon's Places ſet down for Midnight were computed to 12^h. increaſed or diminiſhed by the Equation of Time.

What has been ſhewn concerning the Equation of Time chiefly reſpects the Aſtronomer, the Mariner having little to do with it in computing his Longitude from the Moon's Diſtances from the Sun and Stars obſerved at Sea with the Help of the Ephemeris, all the Calculations thereof being adapted to apparent Time, the ſame which he will obtain by the Altitudes of the Sun or Stars in the Manner hereafter preſcribed.

But if Watches made upon Mr. John Harriſon's or other equivalent Principles ſhould be brought into Uſe at Sea, the apparent Time deduced from an Altitude of the Sun muſt be corrected by the Equation of Time, and the mean Time found compared with that ſhewn by the Watch, the Difference will be the Longitude in Time from the Meridian by which the Watch was ſet; as near as the Going of the Watch can be depended upon.

The Equation of Time was computed for the Ephemeris of 1767 from the Table, Page 3d of Mayer's Tables; but on Account of that Table being made only to the neareſt Second without Decimals, and the Neglect of the ſmall Equations of the Sun, the Calculations of that Article in the Year 1767, cannot always be depended upon nearer than Two Seconds. For the Year 1768 and the following Years it will be computed in the ſtrict Manner explained in my Remarks upon that Subject, in the Philoſ. Tranſact. Vol. liv. P. 342 for the Year 1764; namely, by taking the Difference of the Sun's true right Aſcenſion, and his mean Longitude corrected by the Equation of the Equinoxes in right Aſcenſion, and turning it into Time at the Rate of $1'$. to $15'$. *&c.* The Equation of Time will be additive or ſubſtractive as the Sun's true right Aſcenſion is greater or leſs than his mean Longitude.

The Semidiameter of the Sun, Page 3d, is neceſſary to reduce the obſerved Altitude of his upper or lower Limb to that

of

of the Centre; alſo to reduce the obſerved Diſtance of the Moon's neareſt Limb from the Sun's neareſt Limb to the Diſtance of the Centres. It is alſo uſeful to Aſtronomers to verify or aſcertain the Exactneſs of the Scale of their Micrometers, by Compariſon with the Meaſure of the Sun's horizontal Diameter. This Practice is particularly uſeful in ſolar Eclipſes, when the Diſtance of the Cuſps or the Verſe Sine of the uneclipſed Part has been meaſured with the Micrometer. The Semidiameters of the Sun in Mayer's Tables, on which all the Calculations reſpecting the Sun and Moon are made, ſuppoſe the Semidiameter at the mean Diſtance to be 16′.2″,8. which Mr. Mayer ſays he deduced from above 130 Obſervations taken with his Six Foot mural Quadrant, which ſeemed to him not ill adapted to the Purpoſe. It may not be amiſs to take this Opportunity to remark that the Quadrant here mentioned was given to the Univerſity of Gottingen by his late Majeſty, and was made by Mr. John Bird after the Model of the Eight Foot mural Arch, which he finiſhed for the Royal Obſervatory at Greenwich, and put up there in the Year 1750. Mr. Mayer made his Obſervations with his Six Foot mural Arch, from the Year 1756, to the Time of his Deceaſe; with it he ſettled the mean Obliquity of the Ecliptic to the Beginning of the Year 1756, at 23°. 28′. 16″. which Dr. Bradley ſettled by his Obſervations made in the Years 1750 and 1751, at 23°. 28′. 18″. The Difference is agreeable to what ought to ariſe from the gradual Diminution of the Obliquity of the Ecliptic at the Rate of about ½ a Second in a Year. The ſame Inſtrument he alſo uſed in ſettling the Elements of his ſolar Tables; and it is moſt probable that with the ſame he ſettled his Table of Refractions at the End of his ſolar Tables; the Agreement of this Table with Dr. Bradley's, ſee Page 12d of requiſite Tables, (being both ſuited to the ſame Temperature of the Air) is ſo great, that they ſeem rather like One and the ſame than Two different Tables.

The Time of the Sun's Semidiameter paſſing the Meridian, ſerves to reduce an Obſervation of a Tranſit of the preceding or ſubſequent Limb over the Meridian to that of the Centre, when only One was obſerved. It ſignifies a Portion of apparent Time, or even mean Time, the Difference being abſolutely inſenſible upon ſo ſmall an Interval. It is found thus: Increaſe the Sun's Semidiameter in the Ratio of the Coſine of his Declination to the Radius, to find his Semidiameter in right Aſcenſion, which turned into Time at the Rate of 1′. to 15′. and 1″. to 15″. gives the

Time

Time required. The Sun's Semidiameter in right Aſcenſion is readily found by adding the Log. Coſine of his Declination to the logiſtic Logarithm of his Semidiameter; the Sum is the logiſtic Logarithm of his Semidiameter in right Aſcenſion; which divided by 15 gives the Time of his Semidiameter paſſing the Meridian. If the Clock by which the Obſervation is made be regulated according to ſidereal Time, this Quantity muſt be increaſed in the Ratio of 365 to 366, if great Preciſion is required.

From the Time of the Sun's Semidiameter paſſing the Meridian may be alſo found the Time of its paſſing the horizontal or vertical Wire of a Quadrant or Sextant, which on ſome Occaſions may have its Uſe.—The hourly Motion of the Sun is uſeful in computing ſolar and lunar Eclipſes; alſo in correcting the aſſumed Longitude of the Ship, in order to find the Time from an Obſervation of the Diſtance of the Moon from the Sun, independant of the Diſtances contained in the nautical Ephemeris; See Britiſh Mariner's Guide, Page 49, and Table at the End of the ſame, Page 25, which is alſo copied at Page 14 of requiſite Tables. The Logarithm of the Sun's Diſtance is uſeful in the Calculation of the Places of the Planets and Comets. The Place of the Moon's Node ſignifies its mean Longitude, and is neceſſary for finding the Equation of the equinoctial Points both in Longitude and right Aſcenſion, the Equation of the Obliquity of the Ecliptic, and the Deviations of the fixed Stars in right Aſcenſion and Declination.

The Eclipſes of Jupiter's Satellites are well known to afford the readieſt, and for general Practice the beſt Method of ſettling the Longitudes of Places at Land; and it is by their Means principally that Geography has been ſo much reformed within a Century paſt, and the Poſition of the moſt diſtant Places determined to equal Accuracy with the neareſt. It was hoped that ſome Means might be found of uſing proper Teleſcopes on Shipboard to obſerve theſe Eclipſes, and could this be effected, it would be of great Service in aſcertaining the Longitude of a Ship from Time to Time. In my Voyage to Barbadoes under the Direction of the Commiſſioners of Longitude, I made a full Trial of the late Mr. Irwin's Marine Chair propoſed for this Purpoſe, but found it totally impracticable to derive any Advantage from the Uſe of it; and, conſidering the great Power requiſite in a Teleſcope for making theſe Obſervations well, and the Violence as well as

Irregularities of the Motion of a Ship, I am afraid the complete Management of a Teleſcope on Shipboard will always remain among the Deſiderata. However, I would not be underſtood to mean to diſcourage any Attempt founded upon good Principles to get over this Difficulty.

The Teleſcopes proper for obſerving the Eclipſes of Jupiter's Satellites, are common refracting Teleſcopes, from 15 to 20 Feet, reflecting Teleſcopes of 18 Inches or Two Feet, and Teleſcopes of Mr. Dollond's Conſtruction with Two Object Glaſſes from Five to 10 Feet; or, which are ſtill more convenient, thoſe of $3\frac{1}{2}$ Feet, which he has lately found a Method of conſtructing with Three Object Glaſſes, which are as manageable as reflecting Teleſcopes, and perform as much as thoſe which he makes of 10 Feet with Two Object Glaſſes.

The Eclipſes of Jupiter's Satellites are obſerved by Aſtronomers at Land, as well in order to provide Materials for improving the Theories and Tables of their Motions, as for the ſake of Compariſon with the correſponding Obſervations which may be made by Perſons in different Parts of the Globe, whereby the Longitude of ſuch Places will be accurately aſcertained. It is indeed to be lamented that Perſons who viſit diſtant Countries are not more diligent to multiply Obſervations of this Kind, for want of which, the Obſervations made by Aſtronomers on Shore loſe Half their Uſe, and the Improvement of Geography ſeems to be at a Stand. But it is to be hoped that an Emulation will ſpring up among thoſe who may have Opportunities of rendering ſo uſefull a Service to the Public, to incite them to watch diligently for the Occaſions of obſerving theſe Eclipſes carefully, particularly of the Firſt and Second, which are moſt exact for the Purpoſe. The Eclipſes carefully calculated and ſet down in the Ephemeris, will ſerve to advertiſe them and Obſervers in general of the Times when they ſhould attend to theſe Obſervations. The Perſon who ſhall be under any Meridian different from Greenwich, muſt turn his Difference of Longitude into Time: See Table Page 6, 7, and 8, and add it to or ſubſtract it from the Time of the Eclipſe ſet down in the Ephemeris, according as he is to the Eaſt or Weſt of Greenwich, to find the apparent Time at which the Eclipſe will happen at his Meridian, nearly. He muſt further take care to regulate his Watch or Clock by apparent Time, or at leaſt to know the Difference, as well in order to appriſe him of the Time to look out for the

the Eclipſe, as for aſcertaining the apparent Time exactly at which he ſhall obſerve it. Equal Altitudes of the Sun or Stars taken with an aſtronomical Quadrant afford the beſt Means of regulating Clocks and Watches for occaſional Obſervations; or they may be taken with a Hadley's Quadrant, by Reflection from a Baſon of Water or Quickſilver, or from the Horizon of the Sea, if the Obſerver has an open Proſpect, and is not elevated above 5 or 600 Feet above the Level of the Sea. But, if Opportunity does not admit of taking equal Altitudes, the Time may be determined from One Altitude taken in any of the Methods above mentioned, at leaſt Two or Three Points of the Compaſs diſtant from the Meridian, but the nearer to the Eaſt or Weſt the better, the Latitude of the Place being known, or being found by Obſervations of the Meridian Altitude of the Sun or Stars made on Purpoſe. It will be better to take ſeveral Altitudes in order to take a Mean of the Reſults for greater Certainty. The Manner of computing the apparent Time from the Altitude of the Sun or a Star, will be obſerved when we come to treat of the Method of finding the Longitude by the Obſervations of the Diſtance of the Moon from the Sun and Stars by the Help of the Ephemeris.

The Obſerver being in a Place whoſe Longitude is well known, ſhould be ſettled at his Teleſcope Three Minutes before the expected Time of an Immerſion of the firſt Satellite; Six or Eight Minutes before that of the ſecond and third Satellites; and a Quarter of an Hour or more before that of the fourth Satellite; chiefly on Account of the Uncertainty of their Theories; but, if the Longitude of the Place is very uncertain, he muſt begin to look out for the Eclipſe proportionably ſooner: Thus if the Longitude of the Place is uncertain to 30 Degrees, anſwering to 12 Minutes of Time, he ought to fix himſelf to his Teleſcope 12 Minutes ſooner than is mentioned above. Nevertheleſs when he has obſerved One Eclipſe of any Satellite, and thereby found the Error of the Tables, he may allow the ſame Correction to the Calculations of the Ephemeris for ſeveral Months, which will adverti ſe him very nearly of the Time of expecting the Eclipſes of the ſame Satellite, and diſpenſe with his attending ſo long.

The Immerſions ſignify the Inſtant of the Diſappearance of the Satellite by entering into the Shadow of Jupiter; and the Emerſions ſignify the firſt Inſtant of its Appearance at com-

ing out of the ſame. They generally happen when the Satellite is at ſome Diſtance from the Body of Jupiter, except near the Oppoſition of Jupiter to the Sun, when the Satellite approaches nearer to his Body. Before the Oppoſition of Jupiter to the Sun the Immerſions and Emerſions happen on the Weſt Side of Jupiter, and after the Oppoſition on the Eaſt Side; but if an aſtronomical Teleſcope be uſed, which reverſes Objects, the Appearances will be directly the contrary. Before the Oppoſition, the Immerſions only of the firſt Satellite are viſible; and after the Oppoſition, the Emerſions only. The ſame is generally the Caſe with reſpect to the ſecond Satellite; both the Phænomena of the ſame Eclipſe are frequently obſerveable in the Two outer Satellites. The Immerſions and Emerſions marked with an Aſteriſk in the Ephemeris are thoſe viſible at Greenwich.

To know if an Eclipſe will be viſible in any Place, find if Jupiter is 8°, or 10°. above the Horizon of the Place, and the Sun as much below it. This may be done near enough by a celeſtial Globe: Otherwiſe, the Time of the Sun's Riſing and Setting may be found for any Latitude by a Table of ſemidiurnal Arcs, contained in the popular Book called the Mariner's Compaſs Rectified, and many other Books; the Time of Jupiter's Riſing and Setting may alſo be found from the Time of his paſſing the Meridian and Declination ſet down in the Ephemeris, with the Help of the ſame Table of ſemidiurnal Arcs; adding or ſubſtracting the ſemidiurnal Arc anſwering to the ſame Declination of the Sun: Remembering always that if Jupiter's Declination and the Latitude of the Place are of the ſame Denomination, the ſemidiurnal Arc will be more than Six Hours, and if they are of contrary Denominations, it will be leſs than Six Hours.

The Immerſion or Emerſion of any Satellite being carefully obſerved in any Place according to apparent Time, the Longitude from Greenwich is found immediately by taking the Difference of the Obſervation from the correſponding Time ſhewn in the Ephemeris, which muſt be turned into Degrees, &c. by Table Page 6, 7, and 8; and will be Eaſt or Weſt of Greenwich, as the Time obſerved is more or leſs than that of the Ephemeris.

Example: Suppoſe an Emerſion of the firſt Satellite ſhould be obſerved at the Cape of Good-Hope, May 9, 1767, at 10ʰ. 46′. 45″. apparent Time: The Time by the Ephemeris

being

being $9^h. 33'. 12''.$ the Difference is $1^h. 13'. 33''.$ whence by Table Page, 6, 7, and 8, the Longitude of the Cape ſhould be $18°. 23' 15''.$ Eaſt of Greenwich, becauſe the Time ſuppoſed to be obſerved at the Cape is more than that of the Ephemeris.

It may not be uſeleſs here to obſerve that the Longitude of the Cape of Good Hope $1^h. 13'. 33'' = 18°. 23'. 15''.$ ſet down in the Britiſh Mariner's Guide, is that of the Town; the Latitude alſo belongs to the ſame; being both determined from the Obſervations of Meſſrs. Maſon and Dixon, who went thither under the Direction of the Royal Society, and obſerved the Tranſit of Venus in the Year 1761. Hence, by the Help of the Charts, I find the Longitude of the Cape Point or Promontory $18°. 45'.$ Eaſt of Greenwich, and its Latitude $34°. 30'.$ S. the Longitude of Cape Falſo, $19°. 15'.$ E. and its Latitude $34°. 34'$ S. If theſe Determinations of the Situations of the Cape Point and Cape Falſo are in any reſpect uncertain, it ariſes from the Imperfection of the Charts I was obliged to make uſe of, in reducing the Longitude and Latitude from the Cape Town to the Two mentioned Points: For from the near Agreement of the Abbeé de la Caille's Obſervations with thoſe of Meſſrs. Maſon and Dixon, it is probable that the Situation of few Places is better determined than that of the Cape Town: But if any one has Poſſeſſion of any Manuſcript or printed Charts of theſe Parts that he thinks may be depended upon, or has any Opportunity of determining the Points in Queſtion relatively to each other from the Compariſon of ſeveral Journals of Ships, he may perhaps fix theſe Places with more Certainty than is here pretended to.

It is to be obſerved that a correſpondent Obſervation of an Eclipſe of a Satellite of Jupiter, made under a well known Meridian, is to be preferred to the Calculations of the Ephemeris for comparing with an Obſervation made in a Meridian whoſe Longitude is required; but if no correſponding Obſervation can be obtained, as is frequently the Caſe, it will be beſt to find what Correction the Calculations of the Ephemeris require by the neareſt Obſervations to the given Time that can be obtained; which Correction applied to the Calculation of the given Eclipſe in the Ephemeris, renders it almoſt equivalent to an actual Obſervation.

The Longitudes and Latitudes of the Planets, Page 4, ſerve to know where to look for them in the Heavens, and when

when their Places may be conveniently ſettled by comparing them with fixed Stars by the Help of a Micrometer in a Teleſcope. They alſo ſhew when they are in the moſt important Points of their Orbits, where it is moſt material to obſerve them. They alſo ſerve to enable Perſons leſs ſkilled to diſtinguiſh them from the fixed Stars. Their Declinations and apparent Time of paſſing the Meridian are particulary uſeful to Aſtronomers who are furniſhed with Quadrants and Tranſit Inſtruments well fixed in the Meridian, in ſetting their Inſtruments for obſerving their right Aſcenſions and Declinations.

The apparent Time of a Planet's paſſing the Meridian may be computed thus; the Planet's right Aſcenſion being calculated from its Longitude and Latitude, and turned into Time, ſubſtract the Sun's right Aſcenſion at Noon in Time from it, to find the Time of the Planet's paſſing the Meridian nearly, which call T; take the Difference of the ☉ and Planets daily Variations in right Aſcenſion in Time; if the Planet is progreſſive in right Aſcenſion, or the Sum if it is retrograde, which call X; then ſay, by the Rule of Proportion;

As $24^h \mp X : T :: X : e$ and $T \pm$ will be the correct Time of the Planet's paſſing the Meridian. The upper Signs are to be uſed both to X and e if the Planet's progreſſive Motion in right Aſcenſion be greater than that of the Sun; in any other Caſe the lower Signs are to be made uſe of.

But perhaps it may be found more readily by continual Approximation as follows: Take the proportional Part of the Difference or Sum of the ☉ and Planet's daily Motion in right Aſcenſion, anſwering to the Time of the Planet's paſſing the Meridian, found nearly, in Proportion to 24^h. and take a further like proportional Part of this proportional Part; and again of this laſt, and ſo on as far as is neceſſary. The Sum of all theſe proportional Parts added to the Time of the Planet's paſſing the Meridian found nearly, if the Planet's progreſſive Motion in right Aſcenſion is greater than that of the Sun, otherwiſe ſubſtracted, gives the apparent Time of the Planet's paſſing the Meridian.

Example: Let it be required to find the Time of the Moon's paſſing the Meridian, July 1 1767.

The Sun's right Aſcenſion in Time July 1ſt is, $6^h. 40'. 25''$, and July 2d, $6^h. 44'. 33''$. by the Ephemeris. Therefore his daily Motion in right Aſcenſion is $4'. 8''$. The Moon's right Aſcenſion July 1ſt at Noon by the Ephemeris, is $159°. 2'$. anſwering to $10^h. 36'. 8''$. of Time, and July 2d is, $169°. 39'$. anſwering

ſwering to 10^h. 18′. 36″. The Difference is, 42′. 28″. of Time, from which 4′. 8″. being ſubſtracted leaves 38′. 20″. Subſtract 6^h. 40′ 25″. the Sun's right Aſcenſion July 1ſt, at Noon from 10^h. 36′. 8″, the Moon's right Aſcenſion the ſame Noon, the Remainder 3^h. 55′. 43″. is the Approximate Time of the Moon's paſſing the Meridian. The proportional Part of 38′. 20″ anſwering to this, is 6′. 17″ and the proportional Part of 6′. 17″. is 9″; therefore 6′. 17″ and 9″ or 6′. 26″ added to 3^h. 55′. 43″ give 4^h. 2′. 9″, the apparent Time of the Moon's paſſing the Meridian. In the Ephemeris it is 4^h. 2′. It may alſo be computed by taking the Difference of the Moon's right Aſcenſions at Noon and Midnight, but then half the Sun's daily Variation in right Aſcenſion muſt be made uſe of, and Proportion muſt be made for 12 inſtead of 24 Hours: And if the Moon paſſed the Meridian after Midnight, the Sun's right Aſcenſion at Midnight muſt be uſed, which is a Mean between his right Aſcenſions on the preceding and ſubſequent Noon. For the Planet's, it will be ſufficient to take the firſt proportional Part only.

The Configurations of Jupiter's Satellites, Page 5, exhibit the apparent Poſitions of the Satellites with reſpect to each other, and to Jupiter at ſuch an Hour of the Evening or Night as they are moſt likely to be obſerved, and ſerve to diſtinguiſh the Satellites from one another. Jupiter is diſtinguiſhed by the Mark ⊙, and the Satellites by Points with Figures annexed, the Figure 1 ſignifying the firſt Satellite, 2 the ſecond Satellite, &c. When the Satellite is approaching towards Jupiter, the Figure is put between Jupiter and the Point; and when the Satellite is receding from Jupiter, the Figure is put on the other Side of the Point. The Satellites are in the ſuperior Parts of their Orbits, or furtheſt from the Earth, when they are marked to the right Hand or Weſt of Jupiter approaching him; or to the left Hand or Eaſt of Jupiter receding from him; but are in the inferior Part of their Orbits, or neareſt to the Earth, when they are marked to the right Hand or Weſt of Jupiter receding from him, or to the left or Eaſt of Jupiter approaching him. The Cypher o ſometimes annexed to the Figure of the Satellite towards the Margin, ſignifies that it is inviſible on the Face of Jupiter; and the black Mark ●, ſignifies that it is inviſible, being eclipſed in Jupiter's Shadow, or behind Jupiter, and eclipſed by his Body.

The 7th and 5 following Pages of each Month contain the Moon's Place, and all the Circumſtances relating to her Motions,

tions, and her Diſtances from the Sun and proper Stars, from which her Diſtance ſhould be obſerved for finding the Longitude at Sea. The Longitudes, Latitudes, and Declinations of the Moon, and Time of her paſſing the Meridian, afford the like Uſes with the ſame Circumſtances of the Planetary Motions, and many more beſides. For the ſake of greater Preciſion, the Moon's Longitude, Latitude, Right Aſcenſion, Declination, Semidiameter, horizontal Parallax, with its logiſtic or proportional Logarithm, are computed twice a Day, to Noon and Midnight, and may readily be inferred to any intermediate Time with the greateſt Exactneſs.

Example: Let it be required to find the Moon's Longitude and Latitude, *&c.* July 16, 1767, at $16^h. 22'. 16''$. Firſt to find the Longitude. The Moon's Longitude, July 16, at $12^h.$ is $0^s. 6^\circ. 40'. 25''.$ and July 17 at Noon, $0^s. 13^\circ. 47'. 48''.$ the Difference $7^\circ. 7'. 23''.$ is the Moon's Motion in 12 Hours; ſay then, by the Rule of Proportion,

As $12^h.$ is to $4^h. 22'. 16''.$ (the Exceſs of $16^h. 22'. 16''.$ above $12^h.$) ſo is $7^\circ. 7'. 23''.$ to $2^\circ. 35'. 41''.$ which added to $0^s. 6^\circ. 40'. 25''.$ the Moon's Longitude at $12^h.$ gives $0^s. 9^\circ. 16'. 6''$, the Moon's Longitude nearly; but this muſt be corrected on Account of the Moon's unequal Motion in 12 Hours, by Page 11 of requiſite Tables; for this Purpoſe take out of the Ephemeris the Two Longitudes of the Moon next preceding the given Time, and the Longitudes immediately following it, and ſet them down in Order one after another, as follows.

		1ſt Diff.	2d. Diff.
	s ° ′ ″	° ′ ″	′ ″
July 16, Noon	11. 29. 29. 34.		
Midnight	0. 6. 40. 25.	7. 10 51.	3. 28.
17, Noon	0. 13. 47. 48.	7. 7. 23.	3. 44.
Midnight	0. 20. 51. 27.	7. 3. 39.	

Take their Differences, $7^\circ. 10'. 51''. 7^\circ. 7'. 23''. 7^\circ. 3'. 39''.$ take the Differences of theſe Differences, or the 2d Differences, $3'. 28''. 3'. 44''.$ and take their Mean which is $3'. 36''.$ Now look for the Correction in Page 11 of requiſite Tables anſwering to $4^h. 22'$ after Midnight, found on the Side, and $3' 36''$ at Top, $21''$ will be found under $3'.$ and $28''.$ under $4'.$ the the Difference is $7''.$ whence $36''$ will require $4''$, and the Correction ſought is $21'' + 4'' = 25''.$ which, according to the Remark at the Bottom of the Table, muſt be added (becauſe

cauſe the Motion in 12 Hours or firſt Differences are decreaſing to 0ˢ. 9°. 16′. 6″. the Moon's Longitude found by even Proportion; whence the Moon's true Longitude is 0ˢ. 9°. 16′. 31″. and is as correct as the Longitudes from which it is deduced.

N. B. If the firſt Differences of the Four Longitudes of the Moon taken out firſt increaſe and then decreaſe, or, vice verſâ, firſt decreaſe and then increaſe, take half the Difference of the Two ſecond Differences for the Mean ſecond Difference, with which take the Correction from Page 11, and add or ſubſtract it as the 1ſt. firſt Difference is greater or leſs than the third firſt Difference.

To find the Moon's Latitude. Take out of the Ephemeris the Two Latitudes preceding and Two following the given Time, and ſet them down in Order, and take their firſt and ſecond Differences, and the mean of the Two ſecond Differences; find the proportional Part of the Middle firſt Difference anſwering to the Hours and Minutes, &c. of the given Time after Noon or Midnight; which correct in the following Manner: Entering Table Page 11 with the Hour from Noon or Midnight on the Side, and the mean ſecond Difference at Top, take out the correſponding Number of Seconds, which added to or ſubſtracted from the proportional Part found above, according as the Motion in 12 Hours or firſt Differences are decreaſing or increaſing; or, more generally, according as 1ſt firſt Difference is greater or leſs than third firſt Difference, gives the proportional Part corrected; which now added to or ſubſtracted from the Moon's Latitude at the preceding Noon or Midnight, as the Latitude in theſe 12 Hours is increaſing or decreaſing, gives the Moon's Latitude correct.

Example: The Moon's Latitude is required, July 16, 16ʰ. 22′. 16″.

	☽'s Lat. by the Ephem.	1ſt Dif.	2d Dif.	Mean of 2d Dif.
	°. ′. ″.	′. ″.	′. ″.	′. ″.
July 16. Noon	4 31 10 N.	18 26	4 36	4 40
Midnight	4 49 36	13 50	4 44	
17 Noon	5 3 26	9 6		
Midnight	5 12 32			

The Moon's Latitude July 16 at Midnight being 4°. 49′. 36″. N. and the Motion in the next 12 Hours being 13′. 50″. fay by Proportion;

As 12ʰ. is to 4ʰ. 22′. 16″. ſo is 13′. 50″. to 5′. 2″; but this muſt be corrected by adding 33″. the Correction from Page 11, anſwering to the Hour 4ʰ. 22′. and the Mean Second Difference 4′ 40″, becauſe the firſt Differences are decreaſing, or rather becauſe the firſt of them 18′. 26″. is greater than the laſt of them 9′. 6″. therefore the proportional Part corrected is 5′. 2″. + 33″ = 5′. 35″, which added to 4°. 49′. 36″. gives 4°. 55′ 11″. N. the Moon's Latitude correct.

Remarks on ſome Circumſtances neceſſary to be attended to, in order to obtain and apply the Correction of ſecond Differences rightly in computing the Moon's Latitude.

I. If the Moon's Latitude taken out of the Ephemeris for Noon and Midnight changes its Denomination from North to South or from South to North, the Sum of the Two Latitudes of contrary Denominations, where the Change happens, is to be accounted the firſt Difference in that Place.

II. If the Three firſt Differences firſt increaſe and then decreaſe, or vice verſa, firſt decreaſe and then increaſe, Half the Difference of the Two ſecond Differences is to be taken for the mean ſecond Difference.

III. If the Series of Four Latitudes taken out ſhould firſt increaſe and then decreaſe about the Moon's greateſt Latitudes, take the Sum of the Two firſt Differences ſtanding on each Side of the greateſt Latitude for the ſecond Difference in that Place; correct the Moon's Latitude at Noon or Midnight by the ſimple proportional Part firſt found; and to the Latitude ſo corrected, add always in this Caſe the Correction from Table Page 11, anſwering to the Mean of the Two ſecond Differences.

Before I quit this Subject of Interpolation by ſecond Differences, I ſhall point out another Method, by which the ſame End may be obtained more readily, and with fewer Rules, by thoſe who are well acquainted with algebraical Subſtraction and Addition, and the Manner of applying the Signs in thoſe Operations. Subſtract each Latitude from the following for the firſt Differences, to which prefix the Sign — if the Latitudes decreaſe; and ſubſtract each firſt Difference, thus found, from the following one of the ſame Order for the ſecond Differences. Half the Sum of the Two ſecond Differences

ferences ſtanding on each Side of the Interval to be interpolated, is to be accounted the mean ſecond Difference; the Correction correſponding to it by Table Page 11, is to be applied always with the contrary Sign.

Theſe Operations are to be performed, and the Signs to be applied as in algebraic Subſtraction and Addition. Note further, if the Four given Latitudes change their Denomination, call the ſecond Latitude +, and thoſe of a contrary Denomination —.

The Moon's Declination may be found at any Hour in the ſame Manner as her Latitude; but as the Correction ariſing from ſecond Differences will never exceed $2\frac{1}{2}'$, this may be neglected on moſt Occaſions: but if any one is deſirous to obtain the Declination true to a Minute, the Correction readily applied, as ſhewn above.

The other Articles of Page 7, and 8, *viz.* the Moon's right Aſcenſion, her Semidiameter, horizontal Parallax, with its Logarithm, and the Diſtances contained in the Four laſt Pages of the Month, may be all found correctly by even Proportion, without requiring any Allowance on Account of ſecond Differences. The proportional Part of the Moon's Longitude, *&c.* for any Hour, may be found very readily by the Help of the Table of proportional Logarithms at the End of the requiſite Tables: For which conſult the Explanation of thoſe Tables.

The Moon's Longitude and Latitude are uſed in computing her Diſtances from the Sun and Stars contained in the Four laſt Pages of the Month, as well as in the Appulſes to Stars pointed out in Page 1, and, jointly with her Parallax and Semidiameter, are neceſſary for computing the Eclipſes of the Sun and Moon, and the Occultations of fixed Stars and Planets by the Moon. They alſo facilitate the Calculation of the Longitude of any Place from an Eclipſe of the Sun, or an Occultation of a Star or Planet by the Moon obſerved: Or, if the Meridian be well known, the Parallax and Semidiameter ſerve to deduce the Moon's true Place in the Heavens from the Obſervation, which compared with that given by the Ephemeris ſhews the Error of the Tables, whatever it be at that Time. The Moon's Semidiameter and Parallax are applied in correcting almoſt all Obſervations of the Moon. The logiſtic Logarithms of the Moon's Parallax, ſerve further to facilitate the Calculations of Parallaxes, but if the Table of proportional Logarithms at the End of the requiſite Tables be made uſe,

of, which will be moſt convenient; the conſtant Quantity 0.4771 muſt be added to the logiſtic Logarithms of the Moon's horizontal Parallax contained in the Ephemeris of 1767, to reduce them to proportional Logarithms. It will be more convenient to ſubſtitute proportional Logarithms of the Moon's Parallax inſtead of the logiſtic Logarithms in a future Ephemeris.

The Moon's right Aſcenſion and Declination are uſeful to compute her Altitude at any Time, particularly at the Obſervation of her Diſtance from the Sun or a Star, ſuppoſing it was neglected to be or could not be obſerved properly; which latter Caſe may ſometimes happen in the Night, though I think but rarely; the utmoſt Accuracy not being required for the Calculations of Refraction and Parallax. See Britiſh Mariner's Guide. Page 57. The Moon's Declination, with her Semidiameter and Parallax, ſerve for finding the Latitude by the Meridian Altitude of her upper or lower Limb obſerved at Sea. See Britiſh Mariner's Guide, Page 93. The Moon's right Aſcenſion and Declination ſerve alſo to compute the Time from her Altitude obſerved at the Obſervation of her Diſtance from a Star; whence the Longitude may be inferred, though no Altitude of the Sun or a Star was taken for regulating the Time. See Britiſh Mariner's Guide, Page 61.

The Diſtances of the Moon from the Sun and fixed Stars, contained in the Four laſt Pages of the Month, are ſet down to every Three Hours of Apparent Time by the Meridian of Greenwich, and are deſigned to relieve the Mariner from the Neceſſity of a Calculation, which he might think prolix and troubleſome, and to enable him, when compared with the ſame Diſtances obſerved carefully at Sea, to infer his Longitude readily and with little Danger of Miſtake to a Degree of Exactneſs that may be thought ſufficient for moſt nautical Purpoſes. But uſeful and valuable as the Practice of this Method may be at preſent, it is a Remark not unworthy our Notice, that there is Room to hope, by future Improvements of the lunar Tables, and the Introduction of a more accurate Method of conſtructing Inſtruments, it may be carried to a much higher Degree of Perfection.

The Moon's Diſtance are computed both from the Sun and proper Stars, and generally from One Object on each Side of her, to afford the Mariner a greater Number of Opportunities of Obſervation, and a Means of attaining a greater Degree of Exactneſs. The Diſtances from the Sun

are computed between 40° and 120° of Diſtance. While the Moon is between the Diſtances of 20° and 40° from the Sun, her Diſtance is computed only from a Star on the contrary Side that the Sun is. When ſhe is between the Diſtances of 40° and 90° from the Sun, her Diſtance is computed both from the Sun and from a Star on the contrary Side to the Sun; when the Moon is above 90° from the Sun her Diſtance is computed from Two Stars, one on each Side of her; though ſtill her Diſtance is computed alſo from the Sun from 90° to 120°. Though the Diſtance of the Moon from the Sun or Star, well obſerved with a good Inſtrument, is ſufficient to determine the Longitude, with the Help of the Ephemeris, always within a Degree, and generally much nearer, yet it will conduce to ſtill greater Accuracy, if the Obſerver takes the Diſtance of the Moon from Two Stars, or the Sun and a Star, or, when the Moon is between 90 and 120° Diſtance from the Sun, from the Sun and Two Stars, if he can be ſo lucky as to obtain theſe ſeveral Obſervations.

The Longitude being computed from the Obſervations made with each Star reſpectively, the Mean of the Reſults is to be taken as probably approaching neareſt to the true Longitude. In particular the Moon's Diſtance ſhould be taken from Two Stars, or the Sun and a Star on each Side of her, as often as Opportunity permits, ſince the Mean of the Reſults will probably be at leaſt as exact again as either ſeparately, I mean as far as depends on any Imperfection of the Inſtruments, and unavoidable ſmall Errors ariſing in the Uſe of them; Errors of theſe Kinds having a natural tendency to correct each other; for that ſmall Error which ariſes from the lunar Tables will affect the Reſult from either Star equally. But the Error of Mr. Mayer's laſt lunar Tables here made uſe of, ſcarce ever exceeding 1′ at the moſt, and ſeldom amounting to 20″. the Uncertainty hence ariſing in the Determination of the Longitude can ſcarcely exceed half a Degree, and generally will not exceed 10 Miles.

The Diſtances ſet down in the Ephemeris, afford the Obſerver a ready Means of knowing the Star from which the Moon's Diſtance is to be obſerved; for he has nothing to do but to ſet his Quadrant to the Diſtance computed roughly from the Ephemeris, neglecting the Seconds, at the apparent Time eſtimated nearly by the Meridian of Greenwich; and direct his Sight to the Eaſt or Weſt of the Moon, according as the Diſtance at Greenwich is found in Page 9 and 10,

10, or in Two laſt Pages of the Month; and having found the Moon upon the little Speculum, let him give a Sweep with the Quadrant to the Right and Left, and he will find the Star he ſeeks for, if above the Horizon and the Air be clear, nearly in a Line perpendicular to the Line of the Moon's Horns or longer Axis, or, which is the ſame Thing, in the Line of the Moon's ſhorter Axis produced. The Star is always one of the brighteſt, ſo that there is little Danger of miſtaking another for it, if the preceding Directions are carefully obſerved. The Time at Greenwich is eſtimated nearly by turning the ſuppoſed Longitude from Greenwich into Time, by Table Page 6, 7, and 8, and adding it to or ſubſtracting it from the Apparent Time at the Ship, as its Longitude is Weſt or Eaſt of Greenwich. It will be ſufficient if the Diſtance be computed from the Ephemeris within 10′. or 20′. for ſetting the Quadrant. The principal Uſe of the Diſtances of the Moon from the Sun and fixed Stars; namely, in determining the Longitude by Compariſon with the correſponding Diſtances obſerved at Sea, will be ſhewn hereafter in its proper Order, in the Diſſertation explaining the Method of computing the Longitude at Sea by the Help of the Ephemeris.

The Diſtances contained in the Ephemeris were computed ſtrictly to Noon and Midnight, and thence interpolated for every Three Hours, according to the Method ſhewn for computing the Moon's Latitude, Page 17—19: Except that the Correction of ſecond Differences at the Middle of the Interval to be interpolated, was taken ½ of the Mean of the Two ſecond Differences, and at the firſt and third Quarter of the Interval was taken ⅜ of the Correction juſt found at the Middle of the Interval; inſtead of conſulting Table Page 11, which would however have given the ſame Reſult. But, at the firſt 12 Hours when the Diſtances of the Moon from a Star begin, and the laſt 12 Hours when the Diſtances end, there being only One ſecond Difference inſtead of Two ſecond Differences on each Side to take a Mean of, this Method fails in theſe Caſes, and therefore the following is to be ſubſtituted in its ſtead, being derived from Sir Iſaac Newton's Solution of the Problem of drawing a Curve through the Extremities of any Number of given Ordinates. Phil. Nat. Princ. Math. Page 486. Edit. ult.

From Four Diſtances at Noon and Midnight computed ſtrictly, to interpolate Three Diſtances at the 3d, 6th, and 9th Hour of the firſt or laſt Interval.

Subſtract

Subſtract each Diſtance from the following, for the firſt Differences, and prefix the Sign —, if the Diſtances decreaſe. Subſtract each firſt Differenee thus found from the following one of the ſame Order, for the ſecond Differences: And in like Manner ſubſtract the firſt 2d Difference from the following for the third Difference; applying the Signs as in algebraic Subſtraction. Denote the firſt or laſt firſt Difference by b, the firſt or laſt ſecond Difference by c; according as the Interpolation to be made is for the firſt or laſt 12 Hours, denote alſo the third Difference by d; and, a being put to ſignify the Diſtance at the Beginning of the Interval, the interpolated Diſtances will be as follows:

At 3d Hour of firſt Interval	$a + \frac{1}{4}b - \frac{3}{32}c + \frac{7}{1152}d$
At 6th Hour of firſt Interval	$a + \frac{1}{2}b - \frac{1}{8}c + \frac{1}{128}d$
At 9th Hour of firſt Interval	$a + \frac{3}{4}b - \frac{9}{32}c + \frac{55}{1152}d$
Or	
At 3d Hour of laſt Interval	$a + \frac{1}{4}b - \frac{3}{32}c - \frac{55}{1152}d$
At 6th Hour of laſt Interval	$a + \frac{1}{2}b - \frac{1}{8}c - \frac{1}{128}d$
At 9th Hour of laſt Interval	$a + \frac{3}{4}b - \frac{9}{32}c - \frac{7}{1152}d$

In adapting theſe Formulæ to Numbers, great Care muſt be taken about the right Application of the Signs. Thus if b, c or d is Negative, apply the Number expreſſing the Value of that Term of the Formula where it is found with a contrary Sign to that of the Formula.

Let me add in this Place, that if in filling up the firſt and laſt Intervals, a new ſecond Difference has been ſuppoſed in arithmetical Progreſſion with the Two given ones, in order to take a Mean between it and the firſt or laſt ſecond Difference, the Interpolation at the Middle of the Interval or 6th Hour will be had true, the ſame as if the above Formulæ had been uſed: But at the Interpolation of the firſt and third Quarter there will be an Error of $\frac{1}{1152}$ third Difference; which will be corrected, by applying $+\frac{1}{1152}d$ or third Difference, to Number found at the firſt Quarter of the Interval, and $-\frac{1}{1152}d$ to that found at the third Quarter of the Interval; equally the ſame whether it be the firſt or laſt Interval.

A

CORRECT and EASY METHOD

OF CLEARING THE

APPARENT DISTANCE of the MOON

FROM

A STAR or the SUN

OF THE

EFFECTS of REFRACTION and PARALLAX,

By the Help of THREE TABLES.

By NEVIL MASKELYNE,
ASTRONOMER ROYAL.

TABLE I.

App. Alt. of Star.	Logarithm.	Diff.	App. Alt. of Star.	Logarithm.	Diff.	App. Alt. of Star.	Logarithm.	Diff.
° ′		—	° ′		—	°		—
3 0	2,0713	75	9 0	1,9906	5	35	1,9776	0
3 10	2,0638	66	9 10	1,9901	5	36	1,9776	1
3 20	2,0572	60	9 20	1,9896	4	37	1,9775	0
3 30	2,0512	53	9 30	1,9892	4	38	1,9775	1
3 40	2,0459	48	9 40	1,9888	4	39	1,9774	0
3 50	2,0411	44	9 50	1,9884	4	40	1,9774	1
4 0	2,0367	39	10 0	1,9880	10	41	1,9773	0
4 10	2,0328	36	10 30	1,9870	9	42	1,9773	1
4 20	2,0292	33	11 0	1,9861	8	43	1,9773	0
4 30	2,0259	30	11 30	1,9853	7	44	1,9773	1
4 40	2,0229	27	12 0	1,9846	6	45	1,9772	0
4 50	2,0202	24	12 30	1,9840	5	46	1,9772	1
5 0	2,0178	22	13 0	1,9835	5	47	1,9772	0
5 10	2,0156	22	13 30	1,9830	5	48	1,9771	1
5 20	2,0134	19	14 0	1,9825	4	49	1,9771	0
5 30	2,0115	19	14 30	1,9821	3	50	1,9771	0
5 40	2,0096	16	15 0	1,9818	6	51	1,9771	0
5 50	2,0080	17	16 0	1,9812	5	52	1,9771	0
6 0	2,0063	14	17 0	1,9807	5	53	1,9771	0
6 10	2,0049	14	18 0	1,9802	3	54	1,9771	1
6 20	2,0035	12	19 0	1,9799	4	55	1,9770	0
6 30	2,0023	13	20 0	1,9795	2	56	1,9770	0
6 40	2,0010	10	21 0	1,9793	2	57	1,9770	0
6 50	2,0000	11	22 0	1,9791	2	58	1,9770	0
7 0	1,9989	9	23 0	1,9789	2	59	1,9770	0
7 10	1,9980	9	24 0	1,9787	2	60	1,9770	0
7 20	1,9971	8	25 0	1,9785	1	61	1,9770	0
7 30	1,9963	9	26 0	1,9784	2	62	1,9770	0
7 40	1,9954	7	27 0	1,9782	1	63	1,9770	0
7 50	1,9947	7	28 0	1,9781	0	64	1,9770	0
8 0	1,9940	6	29 0	1,9781	2	65	1,9770	0
8 10	1,9934	7	30 0	1,9779	0	66	1,9770	1
8 20	1,9927	5	31 0	1,9779	1	67	1,9769	0
8 30	1,9922	6	32 0	1,9778	0	68	1,9769	
8 40	1,9916	5	33 0	1,9778	1	to 90	1,9769	
8 50	1,9911	5	34 0	1,9777	1			

TABLE II.

App. Alt. of Sun.	Logarithm.	Diff.	App. Alt. of Sun.	Logarithm.	Diff.	App. Alt. of Sun.	Logarithm.	Diff.
		—			+			+
° ′			° ′			°		
3 0	2,0757	63	8 0	2,0041	4	23	2,0067	10
3 10	2,0684	64	8 10	2,0037	5	24	2,0077	9
3 20	2,0620	59	8 20	2,0032	4	25	2,0086	10
3 30	2,0561	51	8 30	2,0028	4	26	2,0096	10
3 40	2,0510	46	8 40	2,0024	3	27	2,0106	10
3 50	2,0464	42	8 50	2,0021	3	28	2,0116	12
4 0	2,0422	37	9 0	2,0018	3	29	2,0128	9
4 10	2,0385	34	9 10	2,0015	3	30	2,0137	11
4 20	2,0351	32	9 20	2,0012	2	31	2,0148	10
4 30	2,0319	28	9 30	2,0010	2	32	2,0158	11
4 40	2,0291	25	9 40	2,0008	2	33	2,0169	10
4 50	2,0266	22	9 50	2,0006	2	34	2,0179	10
5 0	2,0244	20	10 0	2,0004	4	35	2,0189	10
5 10	2,0224	20	10 30	2,0000	2	36	2,0200	9
5 20	2,0204	18	11 0	1,9998	3	37	2,0209	11
5 30	2,0186	17	11 30	1,9995	1	38	2,0220	10
5 40	2,0169	14	12 0	1,9994	0	39	2,0230	10
5 50	2,0155	15	12 30	1,9994	+ 1	40	2,0240	10
6 0	2,0140	12	13 0	1,9995	1	41	2,0250	9
6 10	2,0128	12	13 30	1,9996	0	42	2,0259	10
6 20	2,0116	11	14 0	1,9996	2	43	2,0269	9
6 30	2,0105	11	14 30	1,9998	3	44	2,0278	9
6 40	2,0094	8	15 0	2,0001	6	45	2,0287	9
6 50	2,0086	9	16 0	2,0007	7	46	2,0296	10
7 0	2,0077	7	17 0	2,0014	7	47	2,0306	8
7 10	2,0070	7	18 0	2,0021	9	48	2,0314	9
7 20	2,0063	6	19 0	2,0030	8	49	2,0323	9
7 30	2,0057	6	20 0	2,0038	9	50	2,0332	8
7 40	2,0051	5	21 0	2,0047	10	51	2,0340	9
7 50	2,0046	5	22 0	2,0057	10	52	2,0349	8

TABLE II. continued.

App. Alt. of Sun.	Logarithm.	Diff.	App. Alt. of Sun.	Logarithm.	Diff.	App. Alt. of Sun.	Logarithm.	Diff.
		+			+			+
°			°			°		
53	2,0357	8	66	2,0447	5	79	2,0500	3
54	2,0365	7	67	2,0452	5	80	2,0503	2
55	2,0372	8	68	2,0457	5	81	2,0505	2
56	2,0380	7	69	2,0462	5	82	2,0507	2
57	2,0387	7	70	2,0467	5	83	2,0509	2
58	2,0394	8	71	2,0472	4	84	2,0511	1
59	2,0402	7	72	2,0476	4	85	2,0512	1
60	2,0409	7	73	2,0480	4	86	2,0513	1
61	2,0416	6	74	2,0484	4	87	2,0514	0
62	2,0422	7	75	2,0488	3	88	2,0514	1
63	2,0429	6	76	2,0491	4	89	2,0515	0
64	2,0435	6	77	2,0495	3	90	2,0515	
65	2,0441	6	78	2,0498	2			

TABLE

TABLE III.

Ap. Al. of ☽, ✱ or ☉		Diff.	Ap. Alt. of ☽, ✱, or ☉		Diff.	Ap. Al. of ☽, ✱ or ☉		Diff.
° ′	′ ″	″	° ′	′ ″	″	°	′ ″	″
3 0	14 36	32	8 0	6 33	7	23	2 26	7
3 10	14 4	30	8 10	6 26	7	24	2 19	5
3 20	13 34	28	8 20	6 19	7	25	2 14	5
3 30	13 6	26	8 30	6 12	7	26	2 9	4
3 40	12 40	25	8 40	6 5	6	27	2 5	4
3 50	12 15	24	8 50	5 59	6	28	2 1	4
4 0	11 51	22	9 0	5 53	6	29	1 57	4
4 10	11 29	21	9 10	5 47	6	30	1 53	3
4 20	11 8	20	9 20	5 41	6	31	1 50	3
4 30	10 48	19	9 30	5 35	5	32	1 47	3
4 40	10 29	17	9 40	5 30	5	33	1 44	2
4 50	10 12	17	9 50	5 25	5	34	1 42	3
5 0	9 55	16	10 0	5 20	15	35	1 39	2
5 10	9 39	16	10 30	5 5	13	36	1 37	3
5 20	9 23	14	11 0	4 52	12	37	1 34	2
5 30	9 9	14	11 30	4 40	11	38	1 32	2
5 40	8 55	13	12 0	4 29	10	39	1 30	2
5 50	8 42	13	12 30	4 19	10	40	1 28	1
6 0	8 29	12	13 0	4 9	9	41	1 27	2
6 10	8 17	11	13 30	4 0	8	42	1 25	2
6 20	8 6	11	14 0	3 52	7	43	1 23	1
6 30	7 55	11	14 30	3 45	8	44	1 22	2
6 40	7 44	10	15 0	3 37	13	45	1 20	1
6 50	7 34	10	16 0	3 24	11	46	1 19	1
7 0	7 24	9	17 0	3 13	10	47	1 18	1
7 10	7 15	9	18 0	3 3	9	48	1 17	2
7 10	7 6	9	19 0	2 54	9	49	1 15	1
7 30	6 57	8	20 0	2 45	7	50	1 14	1
7 40	6 49	8	21 0	2 38	7	51	1 13	1
7 50	6 41		22 0	2 31		52	1 12	

TABLE

TABLE III. continued.

Ap. Al. of ☽, ✱ or ☉		Diff.	Ap. Al. of ☽, ✱ or ☉		Diff.	Ap. Al. of ☽, ✱ or ☉		Diff.
°	′ ″	″	°	′ ″	″	°	′ ″	″
53	1 11	1	66	1 2	1	79	0 58	0
54	1 10	1	67	1 2	0	80	0 58	0
55	1 9	1	68	1 1	1	81	0 58	1
56	1 9	0	69	1 1	0	82	0 57	0
57	1 8	1	70	1 1	0	83	0 57	0
58	1 7	1	71	1 0	1	84	0 57	0
59	1 6	1	72	1 0	0	85	0 57	0
60	1 6	0	73	1 0	1	86	0 57	0
61	1 5	1	74	0 59	0	87	0 57	0
62	1 4	1	75	0 59	0	88	0 57	0
63	1 4	0	76	0 59	0	89	0 57	0
64	1 3	1	77	0 58	1	90	0 57	
65	1 3	0	78	0 58	0			

EXPLA-

EXPLANATION

OF THE

USE of the foregoing TABLES, in clearing the Diſtance of the MOON obſerved from a STAR or the SUN's Centre of the Effects of Refraction and Parallax.

INTRODUCTION.

THE Method here exhibited is an Improvement of that which I have given formerly in the Britiſh Mariner's Guide * and Philoſophical Tranſactions, by means of Three Tables of ready Uſe, the Firſt and Third only of which are to be employed, if the Moon's Diſtance was taken from a Star, and the Second and Third if the Moon's Diſtance was taken from the Sun.—In the Second Table the Effect of the Sun's Parallax is allowed for. Theſe Tables are carried ſo low as the Altitude of Three Degrees, and might be carried with equal Eaſe down to the Horizon; but that it is not thought ſafe to make uſe of Obſervations where the Celeſtial Objects are lower than here ſtated on account of the Variableneſs and Uncertainty of the Horizontal Refractions. Indeed it is adviſeable not to make uſe of Altitudes lower than 5°, except in caſe of Neceſſity: And if there is Opportunity to take them higher, it will be ſtill better.

* See Britiſh Mariner's Guide, chap. V. and Philoſ. Tranſ. Vol. LII. Part II. for 1762, p. 565, 566. and Vol. LIV. for 1764. p. 263.

Table

Table I. contains a Logarithm to be taken out with the Star's apparent Altitude.

Table II. contains a Logarithm to be taken out with the Sun's apparent Altitude. And,

Table III. contains a Number of Minutes and Seconds to be taken out with the Moon's apparent Altitude, and the Star's (or Sun's) apparent Altitude.—The Rules to be followed in making the Calculations are theſe:

PRECEPTS.

I. To the Log. Tangent of half the Difference of the apparent Altitudes of the Moon and Star (or Sun) add the Log. Co-tangent of half the Sum of the ſame, and rejecting 10 from the Index, you will have the Log. Tangent of Arc the Firſt.

II. To the Log. Tangent of Arc the Firſt, juſt found, add the Log. Co-tangent of half the Diſtance of the Moon and Star (or Sun), and, rejecting 10, you will have the Log. Tangent of Arc the Second.

III. If the Star's (or Sun's) Altitude is greater than the Moon's, take the Sum of Arc 2d and half the Diſtance of the Moon and Star (or Sun); but if the Moon's Altitude is greateſt, take the Difference of Arc 2d and half the Diſtance, and you will have Arc the 3d.

IV. To the Log. Tangent of Arc 3d add the Log. Tangent of the Moon's apparent Altitude; the Sum, rejecting 10 from the Index, is the Log. Coſine of Arc 4th.

V. With the Star's apparent Altitude, take a Logarithm out of Table I. or with the Sun's app. Alt. take a Logarithm out of Table II. according as the Moon's Diſtance was taken from a Star or the Sun; the Logarithm thus found, added up together with the Co-tan. of double Arc the firſt, and the Sine of double Arc the ſecond, rejecting 20 from the Index, gives the proportional Log. of the Effect of Refraction, or firſt Correction of Diſtance, which is always to be added to the obſerved Diſtance.

VI. To the Logarithm taken out of Table I. (or II.) add the conſtant Logarithm 0,3010, and the Log. Sine of the Moon's apparent Altitude; the Sum, rejecting 10 from the Index, is the proportional Logarithm of a Number of Minutes and Seconds, to be reſerved.

VII. Enter Table III. with the Moon's apparent Altitude, and take out a Number of Minutes and Seconds, which ſubtract from the Moon's horizontal Parallax, and you will have the Moon's horizontal Parallax diminiſhed; to which add the reſerved Number found under the preceding Article, and you will have the Moon's horizontal Parallax corrected.

VIII. To the proportional Logarithm of the Moon's horizontal Parallax corrected, add the Log. Co-fecant of the Moon's apparent Altitude and Log. Co-tangent of Arc 3d; the Sum, abating 20 from the Index, is the proportional Logarithm of the principal Effect of Parallax, or 2d Correction of Diſtance; which is always to be ſubtracted from the obſerved Diſtance corrected for Refraction, except the Moon's Altitude be greater than that of the Star (or Sun) and at the ſame time Arc 2d be greater than half the Diſtance, in which Caſe it is to be added.

IX. To the conſtant Log. 1.5820 add the Log. Tangent of Diſtance of the Moon from the Star (or Sun) twice corrected, double the Secant of the Moon's Altitude, double the Co-fecant of Arc 4th, and double the proportional Logarithm of the Moon's horizontal Parallax diminiſhed; the Sum, rejecting 30 from the Index, is the proportional Logarithm of the 3d Correction of Diſtance; and is always to be added to the Diſtance of the Star or Sun from the Moon's Centre twice corrected, except the Diſtance exceeds 90°, in which Caſe it is to be ſubtracted.

X. Now enter Table III. with the Star's (or Sun's) Altitude, and take out the correſponding Number; then to the proportional Log. of the Third Correction (found by the preceding Article) add the Log. Coſine of the apparent Diſtance twice corrected, the proportional Logarithm of double the Number juſt taken out of Table III. and the arithmetical Complement of the proportional Logarithm of the Moon's horizontal Parallax diminiſhed (found by Article VII.) The Sum of theſe Four Logarithms, rejecting 20 from the Index, is the proportional Logarithm of the Fourth and laſt Correction of Diſtance, and is always to be added to the Diſtance of the Star or Sun from the Moon's Centre thrice corrected.

Theſe Four Corrections being applied, according to the Rules, to the apparent Diſtance of the Moon from the Star or the Sun's Centre, the true Diſtance will be obtained clear of the Effects of Refraction and Parallax.

Example.

Example.

Let there be given
The apparent Diſtance of Moon from Star 43° 35′ 42″ the ☽'s horizontal Parallax 54′ 42″.

App. Alt. of Star	11 17		
App. Alt. of ☽	9 38		
Difference ——	1 39		
Sum ——	20 55		
½ Diff. ——	0 49	Tang.	8. 1539
½ Sum ——	10 28	Cotang.	10. 7334
Arc 1ſt ——	4 25	Tang.	8. 8873
½ Diſt. ☽ à ✶	21 48	Co-tang.	10. 3980
Arch 2d	10 55	Tang.	9. 2853
Arc 3d ——	32 43	Tang.	9. 8078
The Moon's Alt.	9 38	Tang.	9. 2298
Arc 4th Coſine	83 44	Coſine	9. 0376

Tab. I. with ✶'s Alt. 11° 17′	1. 9857	—— ——	1. 9857
Double Arc firſt 8° 50 Co-t.	10. 8086	Conſ. Log. (of 2)	0. 3010
Double Arc 2d 21° 50′ Sine	9. 5704	Sine ☽'s Alt. 9° 38′	9. 2236
Pr. Log. of the Effect of Refraction = 46″,6 =	2. 3647	Pr. Log. 5′ 33″,5 reſerved N°	1, 5103

	′	″
☽'s horizontal Parallax —	54	42
Tab. III with ☽'s Alt. 9° 38′ Subt.	5	31
☽'s horiz. Parallax diminiſhed	49	11
Reſerved Number —— add ——	5	33,5
☽'s horizontal Parallax corrected	54	44,5

- Pr. Log. 0. 5170
☽'s Alt. 9° 38′ Co-ſecant 10. 7764
Arc 3d = 32 43 Co-tang. 10. 1922

Proport. Log. of Parallax in Diſtance 5′ 53″,0 1. 4856

Conſtant Log.	1. 5820
Tang. Diſt. of ☽ à St. twice corrected 43° 30′	9. 9772
Twice Secant of Moon's Alt. 9° 38′	20. 0124
Twice Co ſecant of Arc 4th, 83. 44	20. 0052
Twice Proport. Log. of Moon's horizont. Parallax diminiſhed, 49′ 11″	1. 1268
The Sum (rejecting 30) is Prop. Log. of 3d Correction 21″,5	2. 7036
Coſine Diſt. 43. 30	9. 8605
Prop. Log. of 4′ 45″ × 2 = 9′ 30″	1. 2775
Ar. Compl. Prop. Log. ☽'s horiz. Par. diminiſhed 49′ 11″	9. 4366
Prop. Log. 4th Correction 5″½	3. 2782

	°	′	″
Hence ☽'s apparent Diſtance from Star —	43	35	42
Firſt Correction —	+	0	46,6
Second Correction —	—	5	53,0
☽'s Diſtance twice corrected	43	30	35,6
Third Correction —	+	21,5	
Fourth Correction —	+	5,5	
True Diſtance of ☽ from Star —	43	31	2,6

Appendix to the foregoing Rules, containing Two other ſmall Corrections, which may be acceptable to the curious and nicer Calculators, or uſeful on particular Occaſions where the utmoſt Accuracy is required; though not recommended as neceſſary for general Practice, and are therefore here placed by themſelves, that they may be either uſed or neglected, as may be thought moſt convenient.

1. The Effect of Refraction found by Article IV. will be rendered more exact, if it be corrected according to the Heights of the Barometer and Thermometer at the Time of the Obſervation, by the Precepts given p. 49 of the *Tables requiſite to be uſed with the Nautical Ephemeris.*

2. In Strictneſs, there is alſo a Second Correction of Refraction ſimilar to that of Parallax or Correction 3d of Diſtance, which however cannot exceed $2''\frac{1}{2}$ if the Altitude of the Star be 5°, or 5″ if its Altitude be 3°, the Diſtance of the Moon from the Star being ſuppoſed 20 Degrees. However, if required, it may be eaſily computed, as follows: To the Proportional Logarithm of the Second Correction of Parallax, or 3d Correction of Diſtance, add double the Proportional Logarithm of the Number taken out of Table III. with the Star's Altitude, (according to Article X.) and the arithmetical Complement of double the Proportional Logarithm of the Moon's horizontal Parallax *diminiſhed*; the Sum, abating 10 from the Index, is the Proportional Logarithm of the Second Correction of Refraction, which always apply to the Diſtance corrected by the foregoing Rules, with the ſame Sign as the 2d Correction of Parallax or the 3d Correction, viz. always add it, except the Diſtance exceeds 90°, when you muſt ſubtract it.

Example.

1. Suppoſe the Height of the Barometer at the Time of taking the Obſervations of the foregoing Example was 30,6 Inches, and the Height of Fahrenheit's Thermometer 20 Degrees. The Effect of Refraction computed for a mean State of the Air by Article IV. and found above 46″,6 when corrected according to p. 49 of the Requiſite Tables, will be increaſed 5″, or become 51″,6, which ſhould be applied inſtead of 46″,6.

2. The

2. The prop. Log. of 3d Corr. 21″,5 ——	2. 703
Double prop. Log. of N°. taken out of Tab. III. with Star's Alt. 4′ 45″ —— ——	3. 157
Ar. Compl. double prop. Log. of ☽'s hor. Par. dimin. 49′ 11″ —— ——	8. 873
The Sum, rejecting 10 —— —— is prop. Log. of the 2d Correction of Refraction, which is here under a Second, and therefore may be neglected.	4. 733

The true Diſtance of the Moon from the Star will therefore be found as follows:

	°	′	″
Obſerved Diſtance of the Moon from the Star	43	35	42
Firſt Correction —— ——	+	0	51,6
Second Correction —— ——	—	5	53,0
Moon's Diſtance twice corrected —	43	30	40,6
Third Correction —— ——	+		21,5
Fourth Correction —— ——	+		5,5
Fifth Correction —— ——			0
True Diſtance of the Moon from the Star	43	31	7,6

Inveſtigation.

In the ſpherical Triangle ZLS, Z repreſents the Zenith, L the apparent Place of the Moon as affected by Refraction and Parallax, and S the apparent Place of the Star as affected by Refraction, or the apparent Place of the Sun as affected by Refraction and Parallax. Let l repreſent the true Place of the Moon, and s the true Place of the Star or Sun, Ll being the Difference of the Moon's Refraction and Parallax in Altitude, and Ss the Star's Refraction, or the Difference of the Sun's Refraction and Parallax. Let ZP, lb, and sd be Arches perpendicular to LSi, and let la be an Arch of a parallel Circle deſcribed from the Pole d; on the Arch ld produced if neceſſary let fall the Perpendicular sc, and from l as a Pole deſcribe a parallel Circle se: Then ls the true Diſtance of the Moon from the Star or Sun is $= le = ld + dc + ce = bd + ab + dc + ce = LS - Lb + Sd + ab + dc + ce$.

Let $Lf = lo$ be equal to the Moon's Refraction in Altitude, then Lo will be the Moon's Parallax in Altitude: From f and o draw fq, on perpendicular to LS. $Lb = Ll \times$ Cof. $ZLS = \overline{Lo - lo} \times$ Cof. $ZLS = \overline{Lo - Lf} \times$ Cof. $ZLS = Ln - Lq$, which being ſubſtituted inſtead of Lb in the Expreſſion above gives

gives $ls = LS + Lq + Sd - Ln + ab + dc + ee$. This Formula contains five Corrections (for $Lq + Sd$ may be conſidered as one Correction, and computed together) which applied to the apparent Diſtance L S will give the true Diſtance ls. The Method of computing theſe five Corrections will be ſhewn in Order as follows:

Let Arches 1ſt, 2d, 3d, and 4th, found by Articles I. II. III. IV. be called A, B, C, D. Put the Moon's horizontal Parallax $= h$, her Parallax in Altitude $= p$, and Refraction in Altitude $= r$, the Star's Refraction in Altitude, or the Difference of the Sun's Refraction and Parallax in Altitude $= s$; all expreſſed in Parts of a Circle to the Radius Unity. It is evident that Arcs the 1ſt and 2d, or A and B, found by Articles I. and II. are the ſame with Arcs the firſt and ſecond found by the Rule for Refraction, Phil. Tranſ. Vol. 54. p. 264. and that C is $= LP$, and $D = ZLS$. It is alſo evident from what is there demonſtrated, that if the Refraction in Altitude at any Zenith Diſtance Z was equal to $x \times$ Tan. Z, x being the Refraction at the Altitude of 45°, that the total Effect of Refraction in contracting the Diſtance of the Moon and Star would be expreſſed by $\frac{2x \times \text{Tan. } 2\text{ A}}{\text{Sin. } 2\text{ B}}$. Now if the Moon's Refraction Lf was to the Star's Refraction Ss, as the Tangent of ZL to the Tangent of ZS, the Refractions both of the Moon and Star would be the ſame as if the Refraction at the Altitude of 45° was $= Ss \times$ Co-tan. ZS, which put $= x$, and the Refraction at any other Zenith Diſtance $Z = x \times$ Tan. Z, and conſequently $Lq + Sd$, the total Effect of Refraction in contracting the Diſtance of the Moon and Star would be equal to $\frac{2x \times \text{Tan. } 2\text{ A}}{\text{Sin. } 2\text{ B}} = \frac{2\,Ss \times \text{Cot. Z S} \times \text{Tan. } 2\text{ A}}{\text{Sin. } 2\text{ B}}$. The proportional Log. of $2x = 2\,Ss \times$ Cot. ZS, is contained in Table I. therefore the Effect of Refraction will be found by Article V. But if the Moon's Diſtance was taken from the Sun, then Ss will repreſent the Diff. of the Sun's Refraction and Parallax in Alt. and the Moon's Refraction being ſuppoſed to be to Ss as the Tangent of ZL to the Tang. of ZS, and x being taken $= Ss \times$ Cotan. ZS as before, $Lq + Sd$, the total Effect of Refraction and the Sun's Parallax would be $= \frac{2x \times \text{Tan. } 2\text{ A}}{\text{Sin. } 2\text{ B}}$. The proportional Logarithm of $2x = 2\,Ss \times$ Cotan. ZS in this Caſe is expreſſed in Table II. Therefore the total Effect of Refraction, together with the Sun's Parallax, will be found by Article V.

To

To find L n,

Hitherto the Moon's Refraction L f has been ſuppoſed to be to S s as the Tangent of Z L to the Tangent of Z S; and conſequently, as F the Refraction at any Altitude is univerſally $= 57'' \times \text{Tan. } \overline{Z - 3}\,F$, the Moon's Refraction will be taken too great or too little for the Truth, according as Z L is greater or leſs than Z S; therefore as Parallax depreſſes the Moon while Refraction raiſes her, add or ſubtract the Error of the Moon's ſuppoſed Refraction to or from the Moon's Parallax in Altitude, and the Error will be corrected; or which comes to the ſame Thing, inſtead of p the Moon's Parallax in Altitude univerſally uſe $p + s \times \text{Cot. } Z\,S \times \text{Tan. } Z\,L - r = p + x \times \text{Tan. } Z\,L - r$, which I call the Moon's Parallax in Altitude corrected, and may be now repreſented by L o in the Figure. And L n will be the 2d Correction of Diſtance $=$ L $o \times$ Cof. Z L S $= \overline{p + x \times \text{Tan. } Z\,L - r} \times \frac{\text{Tan. L P}}{\text{Tan. L Z}}$ (or for p ſubſtituting its Equal $h \times$ Sin. Z L) $= \frac{\overline{h \times \text{Sin. } Z\,L + x \times \text{Tan. } Z\,L - r} \times \text{Tan. L P}}{\text{Tan. Z L}}$ $= h + x \times \text{Sec. } Z\,L - r \times \text{Coſec. } Z\,L \times \text{Cof. } Z\,L \times \text{Tan. C.}$ Now the proportional Logarithm of $2x$ being contained in Table I. or II. and 0.3010 being the Logarithm of 2, the proportional Logarithm of $x \times$ Sec. Z L or the reſerved Number will be found by Article VI. Table III. if entered with the Moon's Altitude, gives the Value of $r \times$ Coſec. Z L; therefore $h - r \times$ Coſec. Z L $+ x \times$ Sec. Z L will be found by Articles VI. and VII. and this I call the Moon's horizontal Parallax corrected.

To find $a\,b$,

Put $h - r \times$ Coſec. Z L $= k$, which call the Moon's horizontal Parallax diminiſhed. It appears by what is ſhewn Phil. Tranſ. Vol. 54. p. 273. that $a\,b = \frac{l\,b^2}{2 \text{ Tan. } l\,S} = \frac{L\,l^2 \times \text{Sin. Z L S}^2}{2 \text{ Tan. } l\,S}$ $= \frac{\overline{p - r}^2 \times \text{Sin. D}^2}{2 \text{ Tan. } l\,S}$ (which becauſe $p - r = h \times$ Sin. Z L $- r$ $= \overline{h - r \times \text{Coſec. } Z\,L} \times \text{Sin. Z L} = k \times \text{Sin. Z L}) = \frac{l^2 \times \text{Sin. Z L}^2}{2 \text{ Tan. } l\,S}$ $\times$ Sin. D^2; whoſe proportional Logarithm is found by Article IX.

To

To find dc,

The Angles dsc, idc, having the ſame Angle sdc for their Complement to a right Angle, are equal to one another, alſo to ldb, and conſequently $dc = sd \times \text{Sin. } dsc = \frac{sd \times lb}{\text{Sin. } ld} = \frac{S_s \times \text{Sin. } ZSL \times Ll \times \text{Sin. } ZLS}{\text{Sin. } ld}$. But ab was found above $= \frac{Ll^2 \times \text{Sin. } ZLS^2}{2 \text{ Tan. } ld}$. Therefore $dc : ab :: \frac{S_s \times \text{Sin. } ZSL \times Ll}{\text{Sin. } ld} \times \text{Sin. } ZLS : \frac{Ll^2 \times \text{Sin. } ZLS^2}{2 \text{ Tan. } ld} :: 2S_s \times \text{Sin. } ZSL \times \text{Tan. } ld : Ll \times \text{Sin. } ZLS \times \text{Sin. } ld :: 2S_s \times \text{Sin. } ZL : Ll \times \text{Sin. } ZS \times \text{Cof. } ld$. Therefore $dc = \frac{ab}{\text{Cof. } ld} \times \frac{2S_s}{\text{Sin. } ZS} \times \frac{\text{Sin. } ZL}{Ll}$ which putting u to expreſs the Value of $\frac{S_s}{\text{Sine } ZS}$ viz. the N°. taken out of Table III. with the Star's Altitude, will be $= \frac{ab}{\text{Cof. } ld} \times \frac{2u}{k}$, whence dc is rightly found by Article X.

To find ce.

ce the ſecond Correction of Refraction mentioned in the Appendix is $= \frac{sc^2}{2 \text{ Tan. } lc}$ nearly $= \frac{sd^2}{2 \text{ Tan. } ld} = S_s^2 \times \frac{\text{Sin. } ZSL}{2 \text{ Tan. } ld}$. Therefore $ce : ab :: S_s^2 \times \text{Sin. } ZSL^2 : Ll^2 \times \text{Sin. } ZLS^2 :: S_s^2 \times \text{Sin. } ZL^2 : Ll^2 \times \text{Sin. } ZS^2$. Therefore $ce = ab \times \frac{S_s^2}{\text{Sin. } ZS^2} \times \frac{\text{Sin. } ZL^2}{Ll^2} = ab \times \frac{u^2}{k^2}$. Q. E. I.

PROBLEM.

Given the apparent Altitudes of the Centers of the Moon and Sun (or a known fixt Star) together with the apparent Diſtance of their Centers: To find the true Diſtance of their Centers at the Time of Obſervation, and from thence the Difference of Longitude between Greenwich and the Place of Obſervation. By Mr. George Witchell.

SOLUTION.

1ſt, From the proportional Logarithm of the Moon's horizontal Parallax (its Index being increaſed by ten) ſubtract the logarithmic Sine of the Moon's Zenith Diſtance, and the Remainder is the proportional Logarithm of her Parallax in Altitude; from which ſubtracting the Moon's Refraction, the Difference will be the Correction of the Moon's Altitude, or (which is the ſame) the Correction of her Zenith Diſtance.

2d, Add together the logarithmic Tangents of half the Sum, and half the Difference of the apparent Zenith Diſtances of the Sun and Moon, and the logarithmic Co tangent of half the obſerved Diſtance the Sum (rejecting twice the Radius) is the logarithmic Tangent of an Arc, which call A.

3d, When the Sun's Zenith Diſtance is leſs than the Moon's, the Difference between the Arc A and half the obſerved Diſtance is to be taken, otherwiſe their Sum, and the Refraction correſponding to the Complement of this Sum or Difference, will be the firſt Correction of the obſerved Diſtance.

4th, If the Difference of the Arc A and half the obſerved Diſtance was uſed in the preceding Rule, let their Sum be now taken, otherwiſe their Difference, and to the logarithmic Cotangent of that Sum, or Difference, add the logarithmic Tangent of the Moon's Zenith Diſtance, and the proportional Logarithm of the Correction of her Zenith Diſtance, and the Sum (rejecting twice the Radius) will be the proportional Logarithm of the ſecond Correction of the obſerved Diſtance.

5th, If the Arc A is leſs than half the obſerved Diſtance, the firſt Correction is always to be added to, and the ſecond ſubtracted from, the obſerved Diſtance——But when the Arc A is greater than half the obſerved Diſtance, both the firſt and ſecond Corrections muſt be added if the Sun's Zenith Diſtance is greater than the Moon's, otherwiſe both muſt be ſubtracted, and theſe two Corrections being applied gives the corrected Diſtance of the Sun and Moon.

6th,

6th, Add together the proportional Logarithms of the Sum and Difference of the Correction of the Moon's Zenith Diſtance, and the ſecond Correction of the obſerved Diſtance, the Logarithmic Tangent of the corrected Diſtance and the conſtant Logarithm 9. 8045——The ſum of theſe four Logarithms (rejecting twice the Radius) will be the proportional Logarithm of the third Correction of the obſerved Diſtance (expreſſed in Seconds and Thirds) to be added when the corrected Diſtance is leſs than a Quadrant, otherwiſe ſubtracted, and the Sum or Difference will be the true Diſtance required; which being obtained, the Longitude will be found by the Rules given in the Requiſite Tables.

N. B. If the Diſtance of the Moon from a known fixt Star is obſerved, the preceding Rules will require no other Alteration than reading Star inſtead of Sun.

EXAMPLE I.

1769 March 18th —	App. Time. 8h 38′ 00″	Dist. ☽ à Pollux. 29° 24′ 46″ W	☽ Altit. 49° 57′	Star's Alt. 64° 19′	H. P. ☽ 57′ 8″

Log. Si. ☽ Zen. Dist.		—9. 8085	☽ Zen. Dist. —	° 40	′ 3	½ Sum —	° 32	′ 52 t. 9. 8103
Hor. Parall. of the ☽	57′ 8″	p. l. 10. 4984	Star's Zen. Dist.	25	41	½ Diff.	7	11 t. 9. 1005
			Sum —	65	44	½ Dist. —	14	42 t′ 10. 5811
Parall. in Alt.	36 46	p. l. 0. 6899	Difference —	14	22	Arc A —	17	15 t. 9. 4919
☽'s Refraction —	0 48		Observed Distance	29	24 46	Diff. —	2	33 Compl. 87° 27′
Corr. ☽'s Zen. Dist.	35 58		1st Correction		— 3	Sum —	31	57 t. 10. 2050
			2d Correction	— 26	41	☽'s Zen. Dist.	40	3 t. 9. 9246
			Corrected Dist.	28	58 2	Cor. Z. D. ☽	35′	58″ p. l. 0. 6994
			3d Correction	+	9	2d Correction	26′	41″ p. l. 0. 8290
			True Dist. —	28	58 11	Sum —	1°	2′ 39 p. l. 0. 4584
			Dist. at 6 Hor.	27	34 17	Diff. —	0	9 17 p. l. 1. 2875
			Dist. at 9 Hor.	29	7 57	Corr. Dist.	28	58 t. 9. 7431
p. l. —	0. 3315		1st Diff. —	1	23 54	Constant Log.		— 9. 8045
p. l. —	0. 2837		2d Diff. —	1	33 40	3d Correction	9″	9‴ 1. 2935
p. l. —	0. 0478			°	′ ″			
			Time after 6 Hor.	2	41 14			
			Time at Greenwich	8	41 14			
			Time at Portsmouth	8	38 0			
			Diff. Longit. W.	0	3 14			
			True Diff. Long.	0	4 26			
			Error of Observat.	0	1 12	Equal to 18 Geographical Miles.		

EXAMPLE II.

1769 March 18th, 10h 25′ 36″ p. m. — App. Time. — Dist. ☽ à Spica. 62° 23′ 59″ E — ☽ Altit. 47° 42′ — St. Altit. 18° 42′ — Hor. Par. ☽ 57′ 6″

57 ″ 6	—	—	10.4986	●	71 18				
			—9.8280	☽	42 18				
38 26	—	—	0.6706		113 36	− ½	— 56 48	t.	− 10.1841
−0 52					29 0	− ½	— 14 30	t.	− 9.4126
37 34					62 23 59½		— 31 12	t′	− 10.2178
					+1 58	A	33 8	t.	− 9.8146
					+1 24		64 20	Compl.	− 25° 40′
					62 27 21		1 56	t′	− 11.4716
					+6		42 18	t.	− 9.9590
					62 27 27		37′ 34″	p. l.	0.6805
				9 Hor. —	63 16 24		1′ 24″	p. l.	2.1111
				12 Hor —	61 38 11				
				5655 —	0 48 57		38 58	p. l.	0.6666
				2631 —	1 38 13		36 10	p. l.	0.6970
				3024 —	10 29 43		62° 27	t.	10.2826
					10 25 36				9.8045
					4 7		West 6″ 24‴		− 1.4487
					4 26				

☉ 19′ Error Obs. = 4¾ Miles.

[21]

Obſervations on the preceding RULES.

THE foregoing Rules being only an Approximation will ſometimes be liable to a ſmall Error, which principally lies in the firſt Correction; for though the Refractions are nearly proportional to the Tangents of the apparent Zenith Diſtances of the Objects, yet they not being accurately ſo, an Error of Ten Miles in Longitude may ariſe when the Sun is not more than five Degrees above the Horizon, and the Arc on which the firſt Correction depends amounts to eighty Degrees; but though it is ſcarce poſſible that ſuch a Circumſtance can ever really occur in Practice, yet it may be proper to ſhew how not only the firſt Correction, but alſo the true Diſtance of the Objects, may be obtained in any Circumſtance whatever; and this may be done as follows:

1. Let the mean Refractions (which are found in page 2d of the Requiſite Tables) be reduced to the true by Dr. Bradley's Rule, which is given in the Explanation of the Requiſite Tables, page 130.

2. The Difference between the Sun's Parallax in Altitude and his Refraction, will be the Correction of the Sun's Zenith Diſtance.

3. Find the Correction of the Moon's Zenith Diſtance, the Arc A, and the Sum or Difference of that Arc, and half the obſerved Diſtance by the former Directions in Articles 1, 2, and 3.

4. Inſtead of taking the Refraction correſponding to the Complement of this Sum or Difference for the firſt Correction, add together the Log. Tangent of the Sun's apparent Zenith Diſtance, the Log. Co-tangent of the Sum or Difference abovementioned, and the proportional Logarithm of the Correction of the Sun's Zenith Diſtance; and the Sum, rejecting twice the Radius, will be the proportional Logarithm of the firſt Correction, which is to be applied as the foregoing Rules direct, as are alſo the ſecond and third Corrections, without any Alteration whatever.

5. If it is deſired to obtain the Diſtance of the Objects true to the neareſt Second, it will be neceſſary to apply a fourth Correction, which will be found by adding together the following four Logarithms; viz.

Half

Half the Sum of the proportional Logarithms of the Sum and Difference of the Correction of the Sun's Zenith Diſtance and the firſt Correction.

Half the Sum of the proportional Logarithms of the Sum and Difference of the Correction of the Moon's Zenith Diſtance and the ſecond Correction.

The Log. Sine of the Diſtance of the Objects twice corrected;

And the conſtant Logarithm — — — 9.5029

The Sum, rejecting twice the Radius, will be the proportional Logarithm of the fourth Correction (expreſſed in Seconds and Thirds) which being always added to the Diſtance thrice corrected, gives the true Diſtance ſought.

EXAMPLE.

EXAMPLE.

Required the true Distance of the Sun and Moon when their observed Distance is 85° 0′ 0″, the Apparent Zenith Distance of the Sun 85° 0′, the apparent Zenith Distance of the Moon 60° 0′, and her Horizontal Parallax 60′ 0″ in the mean State of the Atmosphere.

App. Zen. Dist. ⊙	85° 0′					☽'s Hor. Par.	60′ 0″	p.	0. 4771		
App. Zen. Dist. ☽	60 0					Sine subtract.	——		9. 9375		
Sum ——	145 0					☽'s Par. Alt.	51 57½	p.	0. 5396	⊙'s Par. Alt.	0 10
Difference —	25 0	Half Sum	72° 30′	t.	10. 5013	☽'s Refract.	1 38			⊙'s Refract.	9 54
Observed Dist.	85 0 0	Half Diff.	12 30	t.	9. 3458	☽'s Correct.	50 19½			⊙'s Correct.	9 44
1st Correction	+4 50	Half Dist.	42 30	t′	10. 0379	⊙'s Zen. Dist.	85° 0′	t.	11. 0580		
2d Correction	—2 32½	Arc A	37 30	t.	9. 8859	— — —		t′	9. 2463		
Dist. 2° corr.	85 2 17½	Sum —	80 0	—	—	⊙'s Correct.	9′ 44″	p.	1. 2670		
3d Correction	—— +2	Differ.	5 0	t′	11. 0580	1st Corr.	+4 50	p.	1. 5713		
4th Correction	— +7½	☽ Zen. Dif.	60 0	t.	10. 2386	Sum —	14 34	p.	1. 0919	}	
True Distance	85 2 27	☽'s Corr.	50′ 19″½	p.	0. 5534	Differ.	4 54	p.	1. 5651	} 2. 6570	Sum.
		2d Corr.	—2 32½	p.	1. 8500						
		Sum —	52 52	p.	0. 5321	}	—	—	1. 3285	Half Sum.	
		Differ.	47 47	p.	0. 5760	} 1. 1081	Sum —		0. 5540½	Half Sum.	
		Dif. 2d Cor.	85° 2′	t.	11. 0610		—	—	9. 9983½	Sine of	85° 2′
		Const. Log.	——		9. 8039		—	—	9. 5029	Const. Log.	
		3d Corr. +	1″ 55‴	p.	1. 9728	4th Corr.	+7″ 26‴	p.	1. 3835		

The additional Work is all included within the black Lines, and may be either uſed or neglected without affecting the other Part of the Calculation, which is a very conſiderable Advantage.

If the above Example had been computed according to the former Precepts, without the additional Calculus, the Error would have been but 8½ Miles in Longitude.

G. WITCHELL.

Apparent Times of the Eclipſes of JUPITER's Third Satellite, for the Year 1771, computed from the NEW TABLES, annexed to the NAUTICAL ALMANAC of the ſame Year.

Days	H.	M.	S.	
FEBRUARY 1771.				
3	2	8	18	I.
3	5	12	14	E.
10	6	6	17	I.
10	9	11	14	E.
17	10	4	49	I.
17	13	10	47	E.
24	14	3	58	I.
24	17*	10	53	E.
MARCH.				
3	18	3	33	I.
3	21	11	24	E.
10	22	3	28	I.
11	1	12	17	E.
18	2	3	38	I.
18	5	13	24	E.
25	6	3	56	I.
25	9	14	37	E.
APRIL.				
1	10	4	19	I.
1	13	15	52	E.
8	14	4	35	I.
8	17	17	0	E.
15	18	4	36	I.
15	21	17	52	E.
22	22	4	21	I.
23	1	18	28	E.
30	2	3	53	I.
30	5	18	52	E.
MAY.				
7	6	3	3	I.
7	9	18	45	E.
14	10	1	42	I.
14	13	18	9	E.
21	13*	59	56	I.
21	17	17	10	E.
28	17	57	49	I.
28	21	15	50	E.
JUNE.				
4	21	55	26	I.
12	1	52	59	I.
19	5	50	28	I.
26	9	48	6	I.
JULY.				
3	13*	46	1	I.
10	17	44	20	I.
18	1	6	7	E.
25	5	6	14	E.
AUGUST.				
1	9*	7	0	E.
8	13*	8	28	E.
15	17	10	32	E.
22	21	13	10	E.
30	1	16	21	E.
SEPTEMBER.				
6	1	52	56	I.
6	5	19	55	E.
13	5	56	9	I.
13	9*	23	42	E.
20	9*	59	34	I.
20	13	27	38	E.
27	14	3	1	I.
27	17	31	31	E.
OCTOBER.				
4	18	6	23	I.
4	21	35	19	E.
11	22	9	18	I.
12	1	38	37	E.
19	2	11	53	I.
19	5*	41	41	E.
26	6*	14	4	I.
26	9	44	16	E.
NOVEMBER.				
2	10	15	36	I.
2	13	46	7	E.
9	14	16	24	I.
9	17	47	15	E.
16	18	16	29	I.
16	21	47	41	E.
23	22	15	47	I.
24	1	47	19	E.
DECEMBER.				
1	2	14	22	I.
1	5*	46	14	E.
8	6.	12	25	I.
8	9	44	31	E.
15	10	10	0	I.
15	13	42	23	E.
22	14	7	23	I.
22	17	40	1	E.

Apparent Times of the Eclipſes of JUPITER's Third Satellite, for the Year 1772, by the NEW TABLES in the NAUTICAL ALMANAC of 1771.

Days	H.	M.	S.	
MARCH 1772.				
3	5	58	54	I.
3	9	32	51	E.
10	10	0	36	I.
10	13	34	36	E.
17	14	2	33	I.
17	17	36	32	E.
24	18	4	38	I.
24	21	38	33	E.
31	22	6	35	I.
APRIL.				
1	1	40	28	E.
8	2	8	24	I.
8	5	42	14	E.
15	6	9	56	I.
15	9	43	43	E.
22	10	11	10	I.
22	13	44	48	E.
29	14	11	58	I.
29	17	45	28	E.
MAY.				
6	18	12	11	I.
6	21	45	33	E.
13	22	11	59	I
14	1	45	12	E.
21	2	11	23	I.
21	5	44	26	E.
28	6	10	26	I.
28	9	43	13	E.

Days	H.	M.	S.	
JUNE.				
4	10	8	58	I.
4	13*	41	30	E.
11	14*	7	22	I.
11	17	39	39	E.
18	18	5	40	I.
18	21	37	42	E.
25	22	4	2	I.
26	1	35	50	E.
JULY.				
3	2	2	34	I.
3	5	34	4	E.
10	6	1	30	I.
17	10	0	55	I.
24	14*	1	0	I.
31	18	1	41	I.
AUGUST.				
7	22	3	4	I.
15	2	5	5	I.
22	9*	36	22	E.
29	13*	39	3	E.
SEPTEMBER.				
5	17	42	10	E.
12	21	45	33	E.
20	1	49	9	E.
27	5	52	48	E.

Days	H.	M.	S.	
OCTOBER.				
4	6*31	4		I.
4	9*56	28		E.
11	10*34	50		I.
11	13	59	37	E.
18	14	38	30	I.
18	18	2	42	E.
25	18	41	45	I.
25	22	5	17	E.
NOVEMBER.				
1	22	44	19	I.
2	2	7	16	E.
9	2	46	24	I.
9	6*	8	37	E.
16	6*	47	46	I.
16	10	9	16	E.
23	10	48	31	I.
23	14	9	15	E.
30	14	48	39	I.
30	18	8	41	E.
DECEMBER.				
7	18	48	10	I.
7	22	7	27	E.
14	22	47	20	I.
15	2	5	48	E.
22	2	46	23	I.
22	6*	4	3	E.
29	6*45		20	I.
29	10	2	10	E.

A TABLE of JUPITER's Hour-Angles with the Meridian when 8° high, to every Half Degree of his poſſible Declinations, for the Latitude of Greenwich.

♃'s Declin. North.	Hour-Angle from Merid. in Time.	♃'s Declin. North.	Hour-Angle from Merid. in Time.
D. M.	H. M. S.	D. M.	H. M. S.
0 0	5 8 21	13 0	6 13 55
0 30	5 10 55	13 30	6 16 28
1 0	5 13 29	14 0	6 19 1
1 30	5 16 2	14 30	6 21 35
2 0	5 18 35	15 0	6 24 10
2 30	5 21 7	15 30	6 26 45
3 0	5 23 39	16 0	6 29 21
3 30	5 26 11	16 30	6 31 58
4 0	5 28 42	17 0	6 34 36
4 30	5 31 13	17 30	6 37 15
5 0	5 33 43	18 0	6 39 54
5 30	5 36 13	18 30	6 42 34
6 0	5 38 44	19 0	6 45 16
6 30	5 41 14	19 30	6 47 59
7 0	5 43 44	20 0	6 50 42
7 30	5 46 14	20 30	6 53 27
8 0	5 48 44	21 0	6 56 13
8 30	5 51 14	21 30	6 59 1
9 0	5 53 45	22 0	7 1 50
9 30	5 56 15	22 30	7 4 41
10 0	5 58 46	23 0	7 7 32
10 30	6 1 16	23 30	7 10 26
11 0	6 3 47	24 0	7 13 22
11 30	6 6 18	24 30	7 16 20
12 0	6 8 50	25 0	7 19 19
12 30	6 11 22	25 30	7 22 19

Continuation

Continuation of a TABLE of JUPITER's Hour-Angles with the Meridian when 8° high, to every Half Degree of his possible Declinations, for the Latitude of Greenwich.

♃'s Declin. South.	Hour-Angle from Merid. in Time.	♃'s Declin. South.	Hour-Angle. from Merid in Time.
D. M.	H. M. S.	D. M.	H. M. S.
0 0	5 8 21	13 0	3 54 51
0 30	5 5 46	13 30	3 51 36
1 0	5 3 11	14 0	3 48 19
1 30	5 0 34	14 30	3 44 59
2 0	4 57 57	15 0	3 41 35
2 30	4 55 19	15 30	3 38 8
3 0	4 52 40	16 0	3 34 37
3 30	4 50 0	16 30	3 31 2
4 0	4 47 19	17 0	3 27 24
4 30	4 44 37	17 30	3 23 41
5 0	4 41 54	18 0	3 19 54
5 30	4 39 10	18 30	3 16 2
6 0	4 36 24	19 0	3 12 5
6 30	4 33 37	19 30	3 8 2
7 0	4 30 49	20 0	3 3 53
7 30	4 27 59	20 30	2 59 38
8 0	4 25 8	21 0	2 55 16
8 30	4 22 15	21 30	2 50 47
9 0	4 19 21	22 0	2 46 9
9 30	4 16 24	22 30	2 41 23
10 0	4 13 26	23 0	2 36 26
10 30	4 10 25	23 30	2 31 19
11 0	4 7 23	24 0	2 25 59
11 30	4 4 18	24 30	2 20 26
12 0	4 1 12	25 0	2 14 39
12 30	3 58 3	25 30	2 8 37

A TABLE

A TABLE ſhewing the Hour-Angles of the SUN with the Meridian or Apparent Time from Noon, when his Depreſſion is 8° below the Horizon, to every Half Degree of Declination, for the Latitude of Greenwich.

Sun's Declination NORTH.

Declin.	Hour Angle.	Declin.	Hour-Angle.
D. M.	H. M. S.	D. M.	H. M. S.
0 0	6 51 39	12 0	7 58 48
0 30	6 54 14	12 30	8 1 57
1 0	6 56 49	13 0	8 5 9
1 30	6 59 26	13 30	8 8 24
2 0	7 2 3	14 0	8 11 41
2 30	7 4 41	14 30	8 15 1
3 0	7 7 20	15 0	8 18 25
3 30	7 10 0	15 30	8 21 52
4 0	7 12 41	16 0	8 25 23
4 30	7 15 23	16 30	8 28 58
5 0	7 18 6	17 0	8 32 36
5 30	7 20 50	17 30	8 36 19
6 0	7 23 36	18 0	8 40 6
6 30	7 26 23	18 30	8 43 58
7 0	7 29 11	19 0	8 47 55
7 30	7 32 1	19 30	8 51 58
8 0	7 34 52	20 0	8 56 7
8 30	7 37 45	20 30	9 0 22
9 0	7 40 39	21 0	9 4 44
9 30	7 43 36	21 30	9 9 13
10 0	7 46 34	22 0	9 13 51
10 30	7 49 35	22 30	9 18 37
11 0	7 52 37	23 0	9 23 34
11 30	7 55 42	23 30	9 28 42
12 0	7 58 48		

Continuation of a TABLE ſhewing the Hour-Angles of the Sun with the Meridian or Apparent Time from Noon, when his Depreſſion is 8° below the Horizon, to every Half Degree of Declination, for the Latitude of Greenwich.

Sun's Declination SOUTH.

Declin.	Hour-Angle.	Declin.	Hour-Angle.
D. M.	H. M. S.	D. M.	H. M. S.
0 0	6 51 39	12 0	5 51 10
0 30	6 49 5	12 30	5 48 38
1 0	6 46 31	13 0	5 46 5
1 30	6 43 58	13 30	5 43 32
2 0	6 41 25	14 0	5 40 59
2 30	6 38 53	14 30	5 38 25
3 0	6 36 21	15 0	5 35 50
3 30	6 33 49	15 30	5 33 15
4 0	6 31 18	16 0	5 30 39
4 30	6 28 47	16 30	5 28 2
5 0	6 26 17	17 0	5 25 24
5 30	6 23 47	17 30	5 22 45
6 0	6 21 16	18 0	5 20 6
6 30	6 18 46	18 30	5 17 26
7 0	6 16 16	19 0	5 14 44
7 30	6 13 46	19 30	5 12 1
8 0	6 11 16	20 0	5 9 18
8 30	6 8 46	20 30	5 6 33
9 0	6 6 15	21 0	5 3 47
9 30	6 3 45	21 30	5 0 59
10 0	6 1 14	22 0	4 58 10
10 30	5 58 44	22 30	4 55 19
11 0	5 56 13	23 0	4 52 28
11 30	5 53 42	23 30	4 49 34
12 0	5 51 10		

A PROBLEM in Mercator's Navigation, propoſed by Dr. HALLEY, reſolved by ISRAEL LYONS.

A SHIP ſails from a given Latitude, and having ſailed a certain Number of Miles, has altered her Longitude by a given Quantity, to find the Courſe ſteered.

SOLUTION.

Add together the Logarithmic Coſine of the given Latitude, and the Logarithm of the Difference of Longitude in Minutes, and from the Sum ſubtract the Logarithm of the Diſtance ſailed, likewiſe expreſſed in Minutes, the Remainder is the Sine of the Courſe nearly, call it the approximate Courſe.

In the Traverſe Table, find the given Latitude among the Degrees, and the Difference of Longitude among the Diſtances; half the correſponding Departure will be the firſt Correction of the Courſe in Minutes, to be ſubtracted from the approximate Courſe, if the given Latitude is the leſſer of the two, otherwiſe added.

In Table A find the firſt Correction in the firſt Column marked (Arc), and in the Column marked above with the Complement of the approximate Courſe, find the correſponding Number of Minutes, it will be the 2d Correction. In the ſame Table, find the Difference of Longitude in the firſt Column. And in the Column marked above with the Courſe, find the correſponding Number of Minutes, and taking ſuch a Part of it, as is marked under the given Latitude in Table B, it will be the Third Correction.

The ſecond and third Corrections ſubtracted from the approximate Courſe corrected by the firſt Correction will leave the true Courſe.

TABLE

TABLE A.

Courſe, or its Complement.

Arc	10°	20°	30°	40°	50°	60°	70°	80°	90°
1°	3′	1′	1′	1′	0′	0′	0′	0′	0′
2°	12	6	4	2	2	1	1	0	0
3°	27	13	8	6	4	3	2	1	0
4°	47	23	14	10	7	5	3	1	0
5°	74	36	23	16	11	8	5	2	0
6°	107	52	33	22	16	11	7	3	0
7°	145	70	44	30	21	15	9	4	0
8°	190	92	58	40	28	19	12	6	0

TABLE B.

Lat.	
0°	$\frac{1}{2}$
10°	$\frac{1}{3}$
20°	$\frac{1}{6} + \frac{1}{7}$
30°	$\frac{1}{6} + \frac{1}{8}$
40°	$\frac{1}{6} + \frac{1}{10}$
50°	$\frac{1}{4}$
60°	$\frac{1}{5}$
70°	$\frac{1}{6} + \frac{1}{30}$
80°	$\frac{1}{6}$
90°	$\frac{1}{6}$

EXAMPLE I.

Let a Ship ſail 272 Miles or Minutes Northwards from the Latitude of 46° 20′ North, till ſhe has altered her Longitude 4° or 240′ to find the Courſe.

Coſine Latitude	—	9.83914
Log. Diff. Long.	—	2.38021
		12.21935
Log. Diſt.	—	2.43457
Appr. Courſe 37° 32		9.78478
Its Complem. 52 28		

In the Traverſe Table, the Departure belonging to Diſtance 240 and Courſe 46. 20 is 174, half which 87′ or 1° 27′ is the firſt Correction.

In Tab. A.

with 1° $\frac{1}{2}$ and 52° $\frac{1}{2}$ we find 1′ the 2d Correction.

with 4 and 37 $\frac{1}{2}$ we find 11′, $\frac{1}{4}$ of which (Tab. B.) is 3′, the 3d Correction.

Approximate Courſe —	37. 32
Firſt Correction —	—1. 27
	36. 5
2d and 3d Corrections	—4
	36. 1 the true Courſe.

EXAMPLE II.

Let a Ship ſail Southwards 272′ from the Latitude of 50° 0′ N. till ſhe has altered her Longitude 240′ to find the Courſe.

Cof. Lat. —	9. 80807	In the Traverſe Table, the Departure to Diſtance 240 and Courſe 50° is 184, its half 92′ or 1° 32′ is the 1ſt Correction.
Log. Diff. Long.	2. 38021	
	12. 18828	
Log. Diſt. —	2. 43457	
		By Tab. A. the 2d Cor. is 1′
Appr. Courſe 34° 33′	9. 75371	The Number anſwering to 4° and 34°½ is 12′, ¼ of which is 3′ the 3d Correction.
1ſt Cor. +1 32		
36 5		
2d and 3d Cor. —4		
36 1	true Courſe	

If the Difference of Longitude and Diſtance do neither exceed 8° nor the Courſe 70°, the Approximate Courſe is always within 4° or ¼ of a Point of the Truth; and neglecting the ſecond and third Corrections can never make an Error of 30′.

Suppoſe no Obſervations could have been made of the Latitude for a few Days, yet if the Altitude of the Sun could be obſerved near the prime Vertical, the Time may thence be deduced very nearly, though the Latitude is not known within a Degree; and as the Longitude may be found by the Moon's Diſtance from a Star or the Sun, by the Help of this Problem we may find the Courſe, and conſequently the Latitude, ſo that the dead Reckoning may be corrected from Obſervations of the Longitude as well as thoſe of the Latitude.

Dr. Halley, at the End of his Treatife on the Analogy of the Logarithmic Tangents to the Meridian Line, propofes this Problem, which he fays only remains to make this Doctrine complete: and adds, "The Solution thereof would be acceptable, if not to the Public, at leaft to the Author of this Tract, being likely to open fome further Light into the Myfteries of Geometry."

INVESTIGATION.

Put G = diff. Long. D = Diff.

a = Lat. A its Sine, and z its Coſine.

Courſe = b, B its Sine, and y its Coſine.

x = diff. Lat. = Db.

Then the meridional Parts (μ) between a and $a + x$ is equal to

$$\frac{x}{a} + \frac{A}{2a^2}x^2 + \frac{1+A^2}{6z^3}x^3 \text{ \&c.}$$

And $\frac{1}{\mu} = \frac{a}{x} - \frac{A}{2} - \frac{1+a^2}{12a}x$ \&c. $= \frac{a}{Db} - \frac{A}{2} - \frac{1+a^2}{12a}Db$.

Therefore $\frac{B}{b} = \frac{G}{\mu} = \frac{aG}{Db} - \frac{AG}{2} - \frac{1+a^2}{12a}DbG$ \&c.

And $B = \frac{aG}{D} - \frac{AGb}{2} - \frac{1+a^2}{12a}Db^2G$.

Suppoſe ε to be an Arc whoſe Sine $E = \frac{aG}{D}$, and Coſine $= e$.

Let $\beta = \varepsilon - x$

$B = E - ex - \frac{Ex^2}{2}$ \&c. $b = e + Ex - \frac{ex^2}{2}$

Therefore

$$E - ex - \frac{Ex^2}{2} = \frac{aG}{D} - \frac{AGe}{2} - \frac{AGEx}{2} + \frac{AGex^2}{4} - \frac{1+a^2}{12a}DGe^2.$$

Therefore $x = \frac{1}{2}AG$ nearly = 1ſt Correction.

Suppose $x = \frac{1}{2} A G + y$. This substituted for x gives $ey = \frac{E A^2 G^2}{8} + \frac{1 + a^2}{12 a} D G e^2$. And

$$y = \frac{E A^2 G^2}{8 e} + \frac{1 + a^2}{12 a} D G e = \frac{E x^2}{2 e} + \frac{1 + a^2}{12} \times \frac{G^2 e}{E}$$

$= \text{Tang. } \varepsilon \times \text{vf. } x + \text{Cot. } \varepsilon \times \text{vf. } G \times \frac{1 + a^2}{6} =$ 2d Cor. + 3d Cor.

The Numbers in Tab. B express $\frac{1 + a^2}{6}$.

ADDITION

ADDITION

TO

Mr. DUNTHORNE's Solution of the Problem for finding the Effect of Refraction and Parallax.

Communicated by Mr. DUNTHORNE.

IF we have the Diſtance of the Moon from the Sun, inſtead of a Star (and great Exactneſs be required) his Parallax in Altitude, taken from the following Table, muſt be ſubtracted from his Refraction, and only the Difference uſed in the room of the Refraction of a Star.

A TABLE of the SUN's Parallax in Altitude.

Altitude of the Sun.	Parallax.	Altitude of the Sun.	Parallax.	Altitude of the Sun.	Parallax.
°	″	°	″	°	′ ″
0	9	30	8	60	4
5	9	35	7	65	4
10	9	40	7	70	3
15	9	45	6	75	2
20	8	50	6	80	2
25	8	55	5	85	1
30	8	60	4	90	0

Farther

Farther ADDITION to R. DUNTHORNE's Solution of the Problem for finding the Effect of Refraction and Parallax.

BUT in case the apparent Distance of the Moon from the Sun or a fixed Star exceeds 90°, the latter Part of the Solution will stand thus.

Then, to the Natural Cosine of the Difference of the apparent Altitudes *add* the Natural Cosine of the observed Distance, and find the Logarithm of the Sum, from which take the Logarithmic Difference before reserved, and you will have a Logarithm, from whose corresponding Number the Natural Cosine of the Difference of the true Altitudes being subtracted leaves the Natural Cosine of the true Distance required.

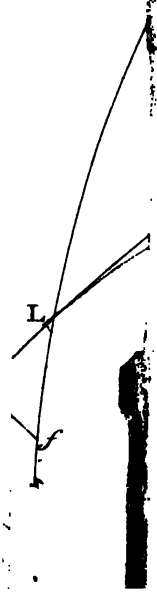
EXAMPLE.

(Being the 2d in Mr. Lyons's Solution of this Problem).

	°	′
The apparent Distance of the Moon's Center from the Sun's Center	102	30
The apparent Altitude of the Moon's Center	27	30
The apparent Altitude of the Sun's Center	15	25
Difference of the apparent or observed Altitudes	12	5
Horizontal Parallax of the Moon 57′ 3″, whence Correction of her Altitude from Table I. 48′ 47″ } Refraction of the Sun 3′ 25″, Parallax of ditto 9″, Difference 3 16 }		
Sum to be added	52	3
Difference of the true Altitudes	12. 57. 3	

Natural Cosine of the Difference of apparent Altitudes	977844
Natural Cosine of 102° 30′, the apparent Distance	216440
Sum of the Natural Cosines	1194284
Logarithm thereof	6. 077108
Logarithmic Difference taken from Table II. 3144 } Particle to be added from the little Tab. p. 66 01 }	

Sum


L

Sum to be ſubtracted	3146
Remainder	6.073963
Number correſponding thereunto	1185668
Natural Coſine of 12° 57′ 3″, the Difference of their true Latitudes, ſubtract	974563
Leaves Natural Coſine of 102° 11′ 14″, the Moon's true Diſtance from the Sun	211105

By Spherical Trigonometry it is 102° 11′ 9″½.

ERRATA

ERRATA of the TABLES requiſite to be uſed with the ASTRONOMICAL and NAUTICAL EPHEMERIS.

Page 17. Mr. Lyons's firſt Table for Refraction.

N° anſwering to	5° and 5′	for 0069	read 0169
	5 and 25	for 4106	read 4266
	5 and 35	for 5350	read 5450
	7 and 23	for 2711	read 2811
	9 and 21	for 1975	read 1795
	13 and 36		read 2266
	17 and 71	for 2908	read 3008
	19 and 69	for 2542	read 2592
	24 and 65	for 1866	read 1816
	25 and 75	for 1864	read 1884
	27 and 44	for 0927	read 0947
	33 and 42	for 0626	read 0656
	34 and 43	for 0635	read 0645

Page 22. Line 13 and 15. for 9214 read 7764
Page 23. Line 4. for 30+15 read 50+25
Page 24. Line 12. for Prop. Log. of 15′. 32″ 0.6653 read Prop. Log. of 15′. 29″ 1.0653

Mr. Dunthorne's Tables.

Page 58. againſt 29° under 53′ for 303,5 read 305,5
Page 63. in Title (Hor. Par. ☽) over the laſt Column, for 61′ read 62′

In the Table of Proportional Logarithms.

Log. of	29′. 13″	for 7996	read 7896
	29. 14	for 7994	read 7894
	56. 28	for 5735	read 5035
	57. 30	for 4656	read 4956

Page 157. Line 24 and 25. the two Ar. Com. Sine are each put one Line too high.
Page 15. Declination of Capella for 45° 43′ 39″ read 45° 44′ 9″.

WORKS publiſhed by the COMMISSIONERS OF LONGITUDE, and ſold by *John Nourſe* in the *Strand*, and Meſſieurs *Mount* and *Page* on *Tower-hill*.

I. THE NAUTICAL ALMANACS of 1767, 1768, 1769, 1770, 1771, and 1772.

II. TABLES requiſite to be uſed with the NAUTICAL ALMANAC.

III. PRINCIPLES of Mr. JOHN HARRISON's WATCH, with PLATES of the ſame.

IV. An ACCOUNT of the Going of Mr. JOHN HARRISON's Watch at the ROYAL OBSERVATORY.

V. The METHOD of Conſtructing MURAL QUADRANTS, exemplified by a Deſcription of the BRASS MURAL QUADRANT in the ROYAL OBSERVATORY at *Greenwich*: To which is added, The METHOD of dividing Aſtronomical Inſtruments; by Mr. JOHN BIRD, Mathematical-Inſtrument-Maker.

VI. TABULÆ MOTUUM SOLIS ET LUNÆ NOVÆ ET CORRECTÆ, AUCTORE TOBIA MAYER: Or, NEW AND CORRECT TABLES OF THE MOTIONS OF THE SUN AND MOON, BY TOBIAS MAYER.

VII. THEORIA LUNÆ JUXTA SYSTEMA NEWTONIANUM, AUCTORE TOBIA MAYER.

N. B. To the NAUTICAL ALMANAC of 1769 are annexed Inſtructions relative to the Obſervation of the Tranſit of Venus over the Sun's Diſk on JUNE 3d, 1769: And to the NAUTICAL ALMANAC of

of 1771 are added Tables for finding the Latitude from Two obſerved Altitudes of the Sun, with the Interval of Time, meaſured by a Watch; and new Tables for computing the Eclipſes of Jupiter's Third Satellite: And to the NAUTICAL ALMANAC of 1772 are annexed Two Methods for clearing the apparent Diſtance of the Moon from the Sun or a fixed Star of the Effect of Refraction and Parallax, the one by the Rev'd NEVIL MASKELYNE, Aſtronomer Royal, and the other by Mr. GEORGE WITCHELL; and the Solution of a Problem in MERCATOR's NAVIGATION, by ISRAEL LYONS.

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